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Rupture of the Uterus and Its Treatment, Based on a Series of Fourteen Cases.

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To anyone acquainted, however slightly, with obstetrics, the mention of rupture of the uterus at once suggests a labour badly managed. Such a view is in the main correct, for, without doubt, in the majority of instances, the accident must be considered a disgrace to the obstetric art and to the individual who has charge of the parturient. There are, however, exceptions, cases in which the accident is quite unavoidable, even cases where it occurs during pregnancy.

Although well aware that the manner in which I am going to consider rupture of the uterus is not the most scientific that could have been adopted, it appears the most practical and has certainly helped me, personally, to a better understanding of the accident. I purpose considering rupture at three distinct periods—(*a*) During pregnancy; (*b*) early in labour; (*c*) after labour has been protracted.

RUPTURE OF THE UTERUS DURING PREGNANCY.

Of cases belonging to this group the most numerous are those in which the uterus has been previously injured. Naturally, the injury which first occurs to one's mind is a previous Cæsarean section wound. There are quite a number of cases in which such a wound has given way, I have myself described one (*Journ. Obst. and Gyn. Brit. Empire*, 1904, vol. vi, p. 378) in which the cicatrix of a fundal incision gave way, and similar cases have been recorded by Eckstein (*Zentralbl. f. Gyn.*, 1904, p. 1302); Meyer (*Zentralbl. f. Gyn.*, 1903, p. 1416); while cases of rupture through the scar of the ordinary longitudinal incision have been reported by Targett, Galabin, Guillaume, Woyer, Koblanck, Everke, and quite recently by Couvelaire (*Annales de Gyn.*, 1906, p. 148), who gives a review of several of the recorded cases.

But other injuries, such as perforation of the uterus with a curette or uterine sound have been followed by rupture at a subsequent pregnancy, as in the cases of Herzfeld (*Zentralbl. f. Gyn.*, 1901, p. 1219) and Staude (*Zentralbl. f. Gyn.*, 1903, p. 706).

In this connection the observations of Jellinghaus (*Archiv f. Gyn.*, Bd. liv and lv) that previous removal of an adherent placenta predisposes to rupture are of particular interest. The probability is, that in such cases the operator actually tears the uterus with his fingers in removing the after-birth, and blood being effused, the wound heals by granulation.

Very similar to the above are those in which a previous rupture gives way. Several cases of this nature are referred to by Peham (*Zentralbl. f. Gyn.*, 1902, p. 87). Lastly, there is a group in which injuries, falls, blows, etc., during pregnancy, have been the cause. Reusing (*Zentralbl. f. Gyn.*, 1895, p. 41) describes a case of his own and several others previously recorded. In most of them the women were multiparæ, but in Reusing's and Plenio's cases they were young primigravidæ. The injury to the uterus was sometimes direct, but in others it was indirect, the women having fallen upon their sides or buttocks. In such cases the laceration is generally in the upper part of the uterus.

As is well known it occasionally happens that the interstitial portion of the tube becomes gravid and ruptures as a rule about the 16th week. Such cases, strictly speaking, are examples of uterine ruptures, but they are usually considered in connexion with ectopic pregnancy. The same applies also to pregnancy in a rudimentary horn of a double uterus.

The cases of rupture of an infantile uterus in which pregnancy occurs are somewhat different, however. Such an occurrence is very rare, for the women are almost invariably sterile; there have been, however, in recent years, several cases described. The two most interesting are those of Freund (*Hegar's Beitrage*, Ht. iv, 1) and Schickele (*Hegar's Beitrage*, 1904, Ht. viii, 2). Freund considered his case one of pregnancy in an infantile uterus, but Schickele looked upon his as possibly a pregnancy in a diverticulum. Similar are the cases, such as Donald's, where a double uterus gives way (*Practitioner*, June 1903).

But putting aside all such cases, which are after all easily explained, and also those such as Martin's (*Trans. Edin. Obst. Society*, vol. xxi, p. 63), where a hydatidiform mole perforated the uterine wall, there yet remain a number in which the cause of rupture is still unknown. Round such cases there is much interesting speculation. As, however, the subject belongs still to the region of speculation, I do not intend to do more than mention some of the views which have been expressed.

Fatty degeneration has been freely spoken of in the past, but in

recent years grave doubts have been expressed regarding the frequency of its occurrence; Herman (*Lond. Obst. Trans.*, vol. xliii, 1901, p. 220), Gebhard (*Pathologische Anatomie Weiblichen Sexualorgane*, 1899, p. 239), and other modern writers are very sceptical regarding it.

Further investigations are necessary before this matter is decided. The same also applies to hyaline degeneration, although, in this connexion a case recently recorded by Meyer (*Hegar's Beitrage*, Bd. ix, Ht. 1) is of great importance and interest. He found in the neighbourhood of the tear, which had occurred during pregnancy, that the uterine tissue and muscle showed signs of hyaline degeneration. The exact effect pregnancy has on a uterus affected by chronic metritis is also unknown, although it has been mentioned repeatedly by writers as favouring the occurrence of rupture, nor is it to be wondered at that it should. Personally I feel convinced that degeneration of the wall is frequently present and predisposes to the accident for a slight fall or cough, or a more than usually violent movement by the child, have been the only apparent exciting causes in some cases.

The recent investigations by Pick (*Berliner kl. Wochenschrift*, 23, 1900), Ivanoff (*Annales de Gyn.*, August, September, October, 1904), Schaper (*Diss. Wurtzburg*, 1901), and many others have not confirmed the theory of Dawidoff and Poroschin (*Zentralbl. f. Gyn.*, 1898, p. 183) that the rupture is due to a deficiency of elastic fibres in the tissue of the uterus in the neighbourhood of the rupture. Several, including Martin (Berlin) and Dührssen have, however, found the elastic fibres diminish as age advances, and it is quite probable that they, in common with other tissues, become altered with each succeeding pregnancy.

The situation of the placenta has an influence in different ways. There are not a few recorded cases of rupture of the uterus associated with placenta prævia. Again, the tubal orifice being a weak spot, as Gebhard points out, implantation there is unfavourable. It is worthy of note that in a considerable number of cases of rupture during pregnancy the placenta has been situated over the tear, and it is just possible that under certain conditions the chorionic villi have a specially destructive effect and burrow unusually deeply into the wall. Be that as it may, not a few authors have referred to the fact, as, for example, Alexandroff (*Monats. f. Geb. u. Gyn.*, 1900, Bd. xii, p. 447), Meyer, Couvelaire, and Eckstein. I also referred to it in recording my own case.

Rupture of the Uterus after a Protracted Labour.

It might appear a natural sequence that having discussed rupture during pregnancy one should turn to those cases where the accident happens early in labour. Personally, I think otherwise, however, for

I am disposed to look upon the latter group from the etiological point of view as standing midway between the group where rupture occurs during pregnancy and the one in which it follows a prolonged parturition. Consequently, it will be best understood after both of these groups have been considered.

Rupture of the uterus following a complex and protracted labour is a subject which has come to be understood only in recent years. Although Guillemeau, Baudelocque, and later, Michaelis appreciated in great part the nature of the accident it is only since Bandl's writings on the "Lower Uterine Segment" that any clear conception of the pathological anatomy of the subject has arisen.

For a correct comprehension of rupture of the uterus in labour one must appreciate the different anatomical features of the uterus and especially of the lower uterine segment during parturition. That being so I must consider them for a moment.

Since Bandl's paper appeared in 1875 the number of contributions to the subject of the lower uterine segment have been legion, but although many matters regarding it have from time to time been settled there are still many details upon which differences of opinion exist, and these differences have not been lessened by the latest frozen sections of Bumm and Blumreich. This is not the place to discuss these in detail, and so I have thought it best to give the principal conclusions of one of the most recent writers. Von Rosthorn, writing in *von Winckels Handbook of Midwifery* (Bd. i, Ht. 1, p. 553), comes to the following conclusions regarding the lower uterine segment.

1. There already exists during pregnancy a lower uterine segment.

2. This segment is covered by decidual altered mucous membrane.

3. The arrangement of the muscle in the wall of the segment is lamellar, and it is to a moderate extent distinct from the wall of the corpus uteri, and very different from that of the part below.

4. The upper part of the lower segment is marked by the firm attachment of the peritoneum, and in the inside, when uterine contractions have already been in existence, by the so-called contraction ring.

5. The lower limit is the essentially different cervical tissue.

6. The mucous membrane appears to vary. In the majority of cases there is a sharp differentiation, on one side distinct decidua and on the other cervical mucous membrane.

During labour the upper part, the body, is the only really active part of the uterus, the lower uterine segment and cervix play an entirely passive rôle. As labour progresses the body becomes diminished in a vertical direction; the retraction or Bandl's ring, which marks the lower limit of the body and the upper limit of the lower segment, becomes drawn up further and further and can be

sometimes appreciated by abdominal palpation, as high as, or even above, the umbilicus. But the active contractions of the uterus would do more than pull up Bandl's ring, they would also pull up the cervix were it not that the latter is more or less fixed by its attachment. As a result, therefore, of the upper part being pulled up and the lower fixed, one finds, in a protracted labour, that the area between, viz., the lower uterine segment, becomes more and more stretched and thinned out. It is not surprising, therefore, that there is a stage at which, not being able to stretch any further, it gives way, either spontaneously or as a result of operative interference.

For many years after Bandl's papers great importance was attached to this fixation of the lower part of the uterus, more particularly by the presenting head, as in cases of contracted pelvis and hydrocephalus. Freund, at the present time, is the strongest supporter of this view, and gives emphatic expression to it in his chapter in *von Winckels Handbuch*, 1905, Bd. xi, Teil 111. But few go so far as Freund, Olshausen and Veit in the last edition of their textbook, and Ivanoff does not attach the same importance to this factor. Personally, my experience leads me, in common with most others, to side with the authorities last mentioned.

Without doubt a good deal of misunderstanding has arisen from the erroneous idea that the cervix is drawn up or retracted over the head during labour. From clinical observation I have not found this to be the case to any great extent, and the records of frozen sections do not give it any support. Barbour (*Anatomy of Labour*, p. 47) points this out when he says: "The dilatation of the cervix can only, to a very slight degree, result from stretching through traction on its ring by the contracting uterine walls, but must be almost entirely due to dilatation through expansion of the ring by the bag of membranes or presenting part."

What happens is that the cervix and lower part of the lower segment become unduly pressed upon, bruised and lacerated. It is not so much that the cervix is pressed down as that it cannot retract over the head.

But let us now consider the conditions which chiefly favour the occurrence of rupture of the uterus—pelvic deformity, malpresentations and malpositions of the child and hydrocephalus, and let us see how they act and the nature of the injuries they produce.

The importance of pelvic deformity as a cause of rupture of the uterus is well illustrated by the large percentage of cases in which bony deformity of the canal exists. In the 14 cases which have been under my care in recent years pelvic deformity was present in 40 per cent., others have had a similar experience. Merz (*Archiv f. Gyn.*, 1894, Bd. xlv, Ht. 2, p. 181) found it in 30 per cent., and Ivanoff in 40 per cent. of their collected cases.

The pelvic deformity is not, as a rule, of the extreme type, for when the deformity is great the danger of the condition is early appreciated, and labour is not allowed to be indefinitely protracted. Almost without exception the women have borne children, and many of them have had several. Naturally, the danger increases with each succeeding pregnancy. This is often attributed to degeneration of the uterus and rightly so in many cases, but in recent years it has come to be recognized that in some, cicatrices from previous labours have given way, cicatrices of wounds often only slight and never appreciated. The nature of the lesion in the different forms of contracted pelvis has been most carefully investigated by Ivanoff, and no one has gone into this subject so particularly. Personally, however, I am not in a position to express any opinion regarding his conclusions, although, I have found that the lesions in cases of contracted pelvis are in general as he has described. He is the first who has so exactly distinguished the lesions which are found in flat pelvis from those which arise in generally contracted pelvis. He believes that the tears are produced by injury of the soft parts between the head and the pelvic wall. The actual rupture may occur spontaneously or be produced by forceps or version.

From these lacerations which occur in the progress of labour, transverse commonly in front or behind in the case of flat pelvis, and lateral in the case of generally contracted pelvis, extension of the tear readily occurs, especially if the child is forcibly extracted. In such cases, as with violent rupture in general, the extension of the laceration is often longitudinal, and is very much more extensive if it follows version than if it follows forceps delivery.

Next in order of frequency as a cause of rupture are malpresentations of the child, and especially transverse presentation. Amongst my cases such a condition existed in 17 per cent., and taking the authorities already referred to one finds that Koblanck found it in 25 per cent., Merz in 11 per cent., and Ivanoff in 32 per cent. As might be expected the rupture in most cases results while attempting version after the waters have drained away and the shoulders have become impacted. But in a certain number of cases this has not been so, the rupture has occurred spontaneously. Spontaneous rupture in transverse presentations, however, is very rare.

In most cases the laceration is longitudinal and to one or other side. It tends to be extensive, as one would expect, and to run up into the body. The cervix is invariably torn, and the vaginal vault in many cases also suffers. In this condition there is no difficulty in understanding how the accident occurs, to my mind it is surprising that it does not occur oftener.

Other malpresentations, such as face and brow presentations, are occasionally found associated with rupture. A brow presentation is certainly a very unfavourable attitude, for the long diameter is

thrown across the pelvic brim. It is dangerous, therefore, to attempt to deliver the child by forceps. Indeed, should such a course be persisted in after one or two futile attempts, the risks of rupture are considerable.

Very much less likely to cause injury are face and occipito-posterior vertex positions; indeed, when they are associated with rupture the cause has usually been some other co-existing condition or the treatment has been very much at fault.

The other important cause of rupture is hydrocephalus. In my cases it occurred once, 7 per cent. Merz found it in 7·5 per cent., Ivanoff in 3 per cent. In most cases of rupture produced by hydrocephalus, however, the hydrocephalus has not really been the cause. Either the condition has not been recognized, and it must not be forgotten how easy it is to overlook the condition, or the proper treatment (craniotomy) has not been practised; attempts have been made with forceps, as in my case, or some other method of delivery has been tried. As a cause of rupture in this condition Freund attaches great importance to the fixation of the cervix by the enlarged head, and he believes this occurs more frequently when the hydrocephalus is of medium dimensions, as when it is very large the head cannot engage and so the cervix slips over the head. With hydrocephalus the cervix and lower segment are burst and but rarely does this occur spontaneously, very usually it follows the application of forceps or traction on the lower limbs.

The lacerations are, as a rule, very extensive and longitudinal. In my case the whole lateral wall was torn longitudinally. In connexion with hydrocephalus, however, it must not be forgotten that very often the uterine wall is diseased.

Other conditions, such as tumours, cicatrices and adhesions, etc., obstructing the parturient canal may naturally predispose to and may be associated with rupture. Old cicatrices, especially about the cervix, are liable to tear, although sometimes cicatricial tissue withstands the strain and the tissues not formerly involved give way.

With tumours, however, the accident should not occur, as it is quite inexcusable to drag a child past a tumour by brute force.

In a certain number of cases rupture has followed the removal of the placenta. Schwendener (*Monats. f. Gyn.*, 1903, vol. xviii), has recorded one as a result of expelling the placenta after Crede's method. Frankel (*Zentralbl. f. Gyn.*, 1903, p. 907) has recorded another. Oswald (*Diss. Basel*, 1902, Ref. *Zentralbl. f. Gyn.*, 1903, p. 336) has collected 38 cases from the literature where it was produced while manually removing the placenta. Twice while removing an adherent placenta situated at the fundus I have found my fingers almost through the uterine wall, an experience which has led me to exert the greatest possible care in performing this simple operation. I have referred elsewhere to the dangers of rupture in subsequent

pregnancies when the uterine wall has been injured by the fingers, curette, or uterine sound.

Rupture of Uterus early in Labour.

We must now turn to the last group of cases, where rupture occurs early in labour

This group, as regards etiology, stands midway between the two others, for rupture partly results from disease of the uterine wall and partly from the effect of the conditions mentioned in connexion with the previous group.

Personally, I cannot but feel that disease of the uterine wall and probably unrecognized lacerations at previous labours play the most important part, for looking at the recorded cases one is struck with the frequency of previous difficult labours, injuries, or disease. Take the case described by Milne Murray (*Edin. Obst. Trans.*, vol. xxvii, p. 39), where the uterus had been curetted and possibly the wall seriously injured. The various diseased conditions which may exist have already been referred to when rupture during pregnancy was under consideration.

But there is another condition which specially comes into play in ruptures of this group, and it was mentioned years ago by Bandl; the lower segment may have been over-stretched at a previous pregnancy, and consequently very early in a subsequent one reaches the same condition. Some of the records would lead one to attach some importance to this view; naturally it will always be very difficult to distinguish rupture caused by such a condition and rupture caused by the giving way of an existing cicatrix.

Freund, such a firm believer in fixation of the cervix as a cause of rupture, considers that even rigidity of the cervix may bring it about. Personally I know of no cases of ordinary simple rigidity having been complicated by rupture, and I have repeatedly seen primiparæ in severe labour for several days without any harm resulting to the cervix. It is not to be wondered at that occasionally rupture of the uterus should be associated, more or less directly, with placenta prævia, for a placental implantation weakens the lower uterine segment and manipulations to arrest hæmorrhage, such as turning, have frequently to be adopted. All others refer to the occasional association of the two complications, my list includes one case, Ivanoff's twelve. Ivanoff rightly, it seems to me, emphasizes the fact that in the vast majority of the cases the laceration was lateral, longitudinal and incomplete. However, spontaneous rupture does occasionally occur, and a case recently recorded by Marceval is a most striking example. The patient was a primipara. Absolutely nothing was done to interfere with the birth of the child except to rupture the membranes when the os was about three-parts dilated. The birth of the child quickly followed. The rupture was

through the posterior wall of the uterus and was, apparently incomplete.

Varieties of Rupture.

In recent years the subject of rupture of the vaginal vault (colporrhexis), as distinguished from rupture of the uterus, has been much discussed. This lesion is no new discovery, indeed before Bandl's papers, lesions of this nature received special attention and were naturally understood better than lacerations of the uterus. Although the lesions have for long been appreciated, after Bandl's papers, laceration of the vaginal vault received less attention than that of the uterus, and indeed until Freund re-awakened interest in the subject it was hardly referred to. In recent years the most important paper is one by Kaufmann (*Archiv f. Gyn.*, 1903, Bd. lxviii, Ht. 1, p. 152), who discusses the subject very fully.

Specially liable to this form of rupture are cases of transverse presentation and pendulous abdomen. Generally the rupture is violent and occurs when the hand is being forced into the uterus, although Kaufmann, in his collected cases, states that only a small proportion were violent. But how is it possible to prove such a statement for the parts could not be fully examined before the particular operation was performed.

Clinically it is customary to speak of " complete " or "incomplete" rupture of the uterus. By the former condition we mean that the laceration extends into the peritoneal cavity, and by the latter that it stops short of the peritoneal coat. This distinction is very useful, for we shall find that the treatment differs in the two groups. As regards the relative frequency of the two varieties it will appear from most series of recorded cases that complete rupture is more common than incomplete. It must not be forgotten, however, that a very large number of cases of incomplete rupture are never reported nor indeed appreciated, while few of the cases of complete rupture escape notice, seeing that the symptoms are more grave. Of the 13 cases of rupture under my care, in private and hospital practice, in only three has the rupture been incomplete. Braun gives it as 4 incomplete and 15 complete; Merz as 46 incomplete and 181 complete; Ivanoff as 43 incomplete and 58 complete. As would be expected the lower down in the uterus and the more lateral the tear, the more likely will the rupture remain incomplete. The cases of laceration during pregnancy or early in labour are, with few exceptions, complete.

Amongst the cases which have been under my care, in one only have I found the bladder involved. In Braun's 19 cases there was only one in which the bladder was injured. Neither in Merz' or Ivanoff's collected cases can I find any evidence of laceration of the bladder. In Murray's most interesting case the bladder was torn and had to be stitched.

Rupture of the bladder, apart from rupture of the uterus and retrodisplacement of the gravid uterus, is very rare. Grimsdale (*Journ. Obst. and Gyn. Brit. Empire*, May 1905) has referred to a most interesting case in which the bladder was injured in the first stage of labour. On opening the abdomen a large quantity of urine was found in the peritoneal cavity. This had escaped from the bladder through a small opening in the upper part. The opening was closed and the patient made an excellent recovery.

There is a very interesting group of cases in which the rupture is incomplete, but instead of the peritoneum remaining intact it is the mucous membrane that does so; the serous coat and the superficial layers of the muscular coats give way. The point of importance in these cases is that there are all the symptoms of collapse from internal hæmorrhage without any appreciable lesion of the uterus or vagina. The lacerations are most commonly in the anterior or posterior wall. Sometimes, if the uterus is over-distended, the peritoneal coat is not injured, as in a case of concealed accidental hæmorrhage which was under my care sometime ago. Knauer has drawn attention to the subject recently (*Zentralbl. f. Gyn.*, 1903, p. 647). In such cases the tears began in the muscle and extended either outwards or inwards.

Symptomatology and Diagnosis.

The clinical features of rupture of the uterus differ greatly according as the rupture occurs in pregnancy, early in labour, or after labour has been in progress for some time. In the two former there is seldom much warning of the accident, while in the latter, very frequently for some little time before, there are premonitory symptoms, which, if properly observed by the accoucheur should lead him to anticipate rupture and consequently to take every precaution to prevent the occurrence.

Taking, first, those cases where the rupture occurs early in labour or during pregnancy, one would naturally expect, as with rupture of any other viscus, that the giving way of the uterus would be followed immediately by very severe abdominal pain, decided collapse, small thready pulse, cold sweats, and other symptoms of internal hæmorrhage. Without doubt, in very many of the cases that is so, and the nature of the condition is self evident, but what is not fully appreciated is that sometimes these symptoms are not present and the accident is overlooked.

The following case of spontaneous rupture of the uterus during pregnancy through the cicatrix of a Cæsarean section wound (*Journ. of Obstet. and Gynæcol. Brit. Empire*, 1904, Vol. vi, p. 378) illustrates how very gradual the onset of the symptoms may be:—

Mrs. M., tertipara, was admitted on October 28th, 1901, to the Glasgow Maternity Hospital. In both the previous labours the

children were extracted with difficulty, and were dead. On the last occasion craniotomy had to be performed. The pelvis was of the flat rachitic type, the diagonal conjugate being 3¾ in. I therefore chose Cæsarean section and employed, the "fundal incision" of Fritsch. I came right down on the placenta, which I removed before extracting the child. The child, which weighed 8 lbs., was extracted very easily, and the uterine wound stitched with little trouble or bleeding. The temperature was never above normal, and the pulse after the first three days was not accelerated. The wound healed by first intention, the stitches being taken out on the fourteenth day. The patient left the hospital on November 30th, both she and the baby being perfectly well.

The following note was made on her admission for the second Cæsarean section on 26th January, 1904:—As far as can be judged the patient is now in her 37th week of pregnancy; she has been in good health, and has suffered no special discomfort since she became pregnant. She is well-nourished and of good colour, her pulse is of good tension, regular in force and rhythm, and numbers 84 per minute. The abdomen is irregularly enlarged, the bulk of the swelling being to the right side. There is a medium firm scar of the previous Cæsarean section. Fœtal movements are active, but the cardiac sounds are nowhere audible. The cervix is not taken up, but admits the tip of one finger.

After an enema, given about midnight, the patient complained of abdominal discomfort—slight pain in the epigastrium; this extended upwards and to the right. She mentioned this to the night nurse, but as she did not complain further and fell asleep the nurse did not think it necessary to report the fact to the house surgeon. She slept from about 12-30 till 5 a.m., at which time a sanguineous discharge from the vagina was noticed, and slight pain in the right iliac region was complained of. At 7 a.m. the temperature was 97.6°, and the pulse 80; the pain, which had now spread over the abdomen, was not very great, so it was taken for painful uterine contractions. There was no sickness or vomiting. At 11 a.m., on making my ward visit, I spoke to the patient quite by chance, for no one considered her condition serious. I then found that there was considerable abdominal tenderness, and suggested to those present the possibility that the old uterine cicatrix had given way. As, however, the pulse was 84 regular, and of good tension, I simply advised my house surgeon, Dr. Rodgers, to go into the case and note the patient's condition carefully. An hour afterwards I was summoned by him as the abdominal tenderness was now more marked, the pulse 90, the temperature subnormal and the breathing more rapid. At this time the condition of the abdomen was as follows:—She lay with her feet slightly drawn up; on palpation there was considerable tenderness over the whole abdomen, more

marked to the right and below the umbilicus; the pain also extended up to the right shoulder. On placing the hand over the abdomen one was struck by the readiness with which the fœtal parts could be defined; above the umbilicus and slightly to the left of the middle line a limb could be made out, while the head lay towards the left iliac fossa. Two tumours could not be differentiated; percussion gave a slightly dull note in the flanks. On vaginal examination the tip of one finger could be pushed through the cervix, but the presenting part could not be felt; on withdrawing the finger it was blood-stained. The pulse numbered 88. Strychnine gr. $\frac{1}{8}$ was given and the patient prepared for laparotomy. She was anæsthetized and the abdomen opened along the previous incision. Immediately a large quantity of dark-coloured blood escaped, and the intact membranes and placenta with the enclosed fœtus presented. The uterus lay retracted behind and down towards the pelvis. The membranes were opened into and a well-formed dead child extracted. The uterus was then examined and found to have a transverse rupture extending over the highest part of the fundus, evidently through the cicatrix of the wound of the previous Cæsarean section. There were only two slight adhesions, one to the omentum and one to the abdominal wall. The uterus was removed by supravagianl hysterectomy, the peritoneum being carefully brought over the stump. Finally, all blood-clot was removed, and fully two pints of saline solution were introduced into the peritoneal cavity. After the operation the patient was considerably collapsed; the lips, cheeks and extremities were blanched; the pulse was 126, small, easily obliterated, but regular. She soon improved, however; the following day the pulse was 120 and the temperature 98°. She was dismissed a month after the operation perfectly well.

Sooner or later in all cases symptoms arise, the woman complains of increasing general abdominal pain. She assumes more decidedly the "abdominal" facies, while a more important feature is the steady increase in the pulse-rate.

As far as I have been able to find from the records of cases this quiet rupture rarely occurs in cases of spontaneous rupture early in labour; in all such cases the classical symptoms of rupture are present, and there is no difficulty in diagnosing the fact that the uterus has given way. The same also applies, although not quite so universally, to rupture in pregnancy when that accident follows any fall or strain. The cases in which insidious rupture takes place are where the uterus is diseased or has been previously injured. In such cases the ovum seems to gradually pass through the uterine tear. Not infrequently the placenta is situated over the tear; quite a number of writers have called attention to this fact.

An interesting case in which rupture was found in progress was

the recorded by Staude (*Zentralbl. für Gyn.*, 1904, p. 731). Early in labour a small elastic tumour developed over the anterior wall of the uterus during the pains. It was diagnosed as a rupture; the abdomen was opened and the diagnosis confirmed.

But, after all, rupture of the uterus during pregnancy or early in labour, is not a condition which is often encountered, and is, consequently not a subject upon which one is justified in lingering. We must, therefore, turn to the cases which form the bulk of the examples of rupture of the uterus, those in which the tear occurs late in labour or during attempts at delivery.

In considering cases of this nature it is customary to discuss the symptomatology before and after rupture. This is a wise procedure, for, in a large proportion of cases there are distinct premonitory symptoms. After a prolonged second stage, where the expulsive forces are not at fault, the patient becomes restless and complains of constant pain over the lower part of the uterus, while the uterine contractions tend to become more and more tetanic. In addition the pulse becomes more rapid and the temperature possibly rises slightly. But along with these symptoms there is a steady increase of the lower uterine segment. This can be easily appreciated, for the retraction or Bandl's ring can be felt to rise higher and higher. There is seldom any difficulty in recognizing the ring for it can be felt as a hard ridge round the uterus. I have seen it higher than the umbilicus. It is not always at the same level all round; especially is this seen in cases of transverse presentations, where one part is subjected to greater strain than the other. One can often appreciate that the wall of the segment is very thin, but, as a rule, it is so tense and tender that the fœtal parts cannot be differentiated. With a uterus in such a state rupture may occur at any time.

How general such symptoms are prior to rupture I have not had opportunities of judging, for, with one exception, the patients have come under my care after the rupture had occurred. From what I have been able to gather, however, in very many cases they were present, and I have many times seen them and feared rupture. When a patient is brought into hospital in such a condition, no attempts to deliver by version or forceps should be made; decapitation or craniotomy should be immediately performed.

Turning now to the symptoms which follow rupture, it is a very striking fact that in a large number of cases the rupture has not been recognized until after the birth of the child. The classical symptoms of a sudden feeling of something giving way, of a cessation of the uterine contractions, of alteration in the shape of the abdominal swelling, of hæmorrhage and collapse, are very frequently absent; nor is this to be wondered at, considering that in many cases the child's head is already well engaged in the pelvis, and the rupture so often takes place during the delivery. Let us consider the symptoms

seriatim. In very few indeed of my cases, or those reported by Ivanoff and others, has the symptom of a sudden feeling of something having given way been present, and naturally it cannot be expected to be appreciated in the cases of violent rupture, for the patient is then usually under the influence of the anæsthetic. When it does occur it is usual that the laceration is extensive and the child in whole, or in part, escapes from the uterine cavity into the abdominal cavity or into the cellular tissue underneath the peritoneum.

The same remarks apply to cessation of the uterine contractions. This symptom is again most pronounced where the child escapes into the abdominal cavity. It must not, of course, be confused with the uterine inertia which follows exhaustion of the uterine muscle; the latter is gradual in its onset.

It is hardly necessary to say that an alteration in the shape of the abdominal swelling can only occur if the child passes, in whole or in part, outside of the uterus, and this, we have seen, does not occur so often as is supposed. When it does occur two abdominal swellings become apparent, the one representing the parts of the child that have escaped, the other the retracted uterus. Naturally it is most distinct when the child and uterus lie side by side; if the retracted uterus is placed behind—as in one of my cases—it is impossible to distinguish the two swellings. When present, it is, of course, a symptom of great importance, especially if beforehand the accoucheur has actually observed the uterine outline.

Occasionally other conditions simulate rupture. Quite recently I saw a case of dystocia from pelvic deformity in a patient who had a bipartite uterus. The double swelling of the uterus and the collapse of the patient led me, on seeing the case for the first time, to think of rupture of the organ. It was a case of accidental hæmorrhage. Similarly, in cases of plural pregnancy, the uterine swelling being often irregular and double, a suspicion of rupture of the uterus may arise, if the patient shows any evidence of collapse during labour. Again, in cases where there is a co-existing tumour, either ovarian or uterine, a differential diagnosis has occasionally to be made between such a condition and rupture of the uterus. But a difficulty in differential diagnosis may occur in a much simpler and more common condition, viz., in impacted oblique presentations, for then there are the two swellings with a sulcus between. Very frequently when such cases are brought into hospital in a state of collapse we have great difficulty in deciding if rupture has occurred or not. Indeed, often it is only possible to decide by a vaginal examination under deep anæsthesia.

In addition to alteration in outline of the uterus, the fœtal parts become much more easily palpated after the child has escaped into the peritoneal cavity. One must be very careful in deciding upon rupture under such circumstances unless other symptoms and signs

are present, for sometimes the uterine wall is so soft and thin that one imagines one feels the fœtal members as if underneath the thin abdominal parietes. In advanced extra-uterine pregnancy the child can also be very easily palpated.

The amount of hæmorrhage which occurs as a result of rupture of the uterus varies very greatly. Amongst my own cases I have only had three in which it was extremely severe. Ivanoff in his long series of 124 collected cases found 53 in which the hæmorrhage proved fatal, and in half of them not until many hours after the accident.

One may be deceived in respect to the actual quantity of blood lost for a considerable amount may escape into the peritoneal cavity or into the cellular tissue around the uterus and remain concealed. Sometimes very little blood escapes from the vagina. The reason for this is the relative situation of the tear to the larger vessels and and the fact that the latter do not tear readily. In the last case of rupture upon which I operated, the tear was along the side of the large uterine artery, which could be seen pulsating, but only the smaller veins were torn. [Case of complete rupture of the uterus, with escape of the fœtus into the peritoneal cavity—panhysterectomy —recovery. (*Brit. Med. Journ.*, August 24th, 1907)] The case may be described in brief.

Mrs. X., secundipara, aged 24, had been delivered by craniotomy four years before her present admission on 18th March, 1907. Present labour came on at term. Attempts at delivery with forceps failed, after which she was sent into the Maternity Hospital under my care. When I saw her a little time after her admission her pulse was 140 and she was evidently ill but not seriously collapsed. My house surgeon informed me that she was worse than when she was admitted. There was no history of sudden pain or of anything having "given way." She was not very blanched. I could feel the child free in the abdominal cavity. From the vagina I could feel an extensive tear on the right side of the uterus and vaginal vault. There was no profuse vaginal hæmorrhage. Upon opening the abdomen I found the fœtus free in the abdominal cavity which also contained meconium, vernix caseosa, liquor amnii and a little blood. After removing the child and placenta I examined the rupture and found that it extended vertically through the right lateral wall of the lower segment and transversely in front so that only a small portion of cervix remained attached to the bladder. The bladder itself was not injured.

I clamped and then divided all the uterine attachments and removed the uterus entirely. I then packed the lower part of the pelvis with gauze and closed the abdomen. The whole operation did

not take 25 minutes. The patient soon got over the shock and made an uninterrupted recovery.

I have already quoted Ivanoff's experience and my own, which agrees with it. In the most recent paper on the subject, that of Eversmann (*Archiv f. Gyn.*, lxxv 1, p. 601), this writer states that only in some 12—15 per cent. of cases does the blood come from the ruptured uterine vessels. It is a very erroneous idea, therefore, but one generally expressed by those with little experience of this complication that rupture of the uterus is followed immediately by profuse bleeding. Infinitely more common is a steady but slow hæmorrhage. The pulse rate in such cases slowly rises, and uneasiness and general abdominal pain and the ordinary symptoms of collapse become gradually more pronounced. The case already recorded is an illustration of this, as was also one brought to me from the country some little time ago. The patient, although driven 30 miles, had absolutely no symptoms of collapse and a pulse of not more than 80. She was found to have a complete rupture of her uterus. I removed the uterus and she made a most satisfactory recovery.

When all the classical symptoms are present there is very little difficulty in coming to a diagnosis. There are few other conditions associated with similar symptoms. Accidental hæmorrhage, or placenta prævia is undoubtedly attended with all the symptoms of collapse and profuse hæmorrhage, but a vaginal examination, at least in the case of placenta prævia, reveals the condition. With accidental hæmorrhage, either apparent or concealed, it occasionally happens that the diagnosis is rendered difficult, and scattered through obstetric literature are several recorded cases of mistaken diagnosis. In such, the history of the case and a careful vaginal and abdominal examination, if need be under deep anæsthesia, will usually clear matters up.

The diagnosis between complete and incomplete rupture can only be arrived at by vaginal examination, except in the cases where the child is evidently free in the peritoneal cavity. When the rupture is complete one feels the intestines distinctly, when it is incomplete that is not possible. In theory, that is simple enough, but once or twice I have had a little difficulty in deciding, for the peritoneum is very thin. Some time ago I performed hysterectomy upon a case of rupture sent into the hospital by a confrère of great obstetric experience; he had packed the rent and told me the rupture was complete, as he had felt the intestines between his fingers. When I opened the abdomen there was no laceration of the peritoneum.

Prognosis.

The prognosis of rupture of the uterus is much more favourable to-day than it was when the condition was treated expectantly.

When the latter treatment was in vogue many cases were, of course, never appreciated, but even amongst those which were recognized occasional recoveries followed. A former physician of the Maternity Hospital told me of one in which, after delivery of the child, he had pushed his hand through the extensive and complete rupture and had easily felt the bowel, but yet the patient made an uninterrupted recovery.

Scattered through obstetric literature are many extraordinary cases, but certainly amongst the most wonderful was one recorded by Leopold (*Archiv f. Gyn.*, 1896, vol. lii, p. 375) in which rupture occurred at the fourth month and yet pregnancy continued to term when the child died. On opening the abdomen three months later the child was removed. Its umbilical cord was found to run through an opening in the posterior wall of the uterus. But it is profitless to consider such rarities.

Various estimates are given of the mortality from the expectant treatment, but it appears to have been 90 per cent. at least amongst recognized cases of complete rupture. Naturally it was much lower in the incomplete variety.

In recent years, with a more exact understanding of the condition and active treatment the mortality has fallen fully a third. It is still, however, 50—60 per cent., being a little higher than that figure for complete and a little lower for incomplete rupture. This question, however, will be more carefully considered when the different methods of treatment are being discussed.

Treatment.

As rupture of the uterus is so often a preventable accident it is necessary that I should say a word or two about its prophylaxis. As regards those cases where the uterus has been previously injured, either by tears, incisions, curettage or disease, subsequent pregnancies should be watched, and especially during the later weeks, the patient should be under careful observation so that, should rupture occur, an operation can be immediately undertaken. The same applies to those whose previous labours have been difficult and protracted owing to malformations of the pelvis, or undue size of the children, for, as we have seen, previous lacerations are often passed unrecognized, and a lower segment which has once been overstretched yields and tears more readily.

As the danger of rupture during the first stage is practically nil, excepting in cases where there have been previous lacerations or injuries to the uterus, there is nothing to be done.

In the second stage, however, if any of the premonitory symptoms of rupture arise delivery must be carefully completed. In contracted pelvis the degree of deformity and the relative size of fœtal head and pelvis should be carefully calculated, and the safest treatment

adopted. As rupture of the uterus so commonly occurs in neglected transverse presentations it is of the greatest importance that such a malposition of the child should be early recognized and corrected, but if, for any reason, the presentation has not been appreciated or the accoucheur has not seen the case until after labour is far advanced, attempts at version must not be made, unless there is every prospect of the child being easily turned. The disastrous results that follow attempts at version in neglected cases are greatly to the discredit of the obstetric art.

Hydrocephalus, another condition, as we have seen, occasionally followed by rupture, is much more difficult to recognize, especially if the child presents by the breech.

Before leaving the subject of prophylaxis, I must warn the accoucheur against the danger of performing vaginal operations, such as turning, etc., with the woman only partially anæsthetized. Strong uterine contractions of the abdominal and pelvic muscles and of the uterus are set up by the introduction of the hand and, in consequence, many cases of rupture, especially of rupture of the vaginal vault, are brought about by the operator requiring to employ undue force in overcoming the resistance of the uterus.

Active Treatment.

The treatment of rupture of the uterus when it has occurred is a subject, regarding which, there are still considerable differences of opinion, and, in all probability, it will continue in this position for some time to come.

Before, however, the active treatment of rupture can be discussed, we must consider what is to be done with the child if it is still undelivered when the rupture is recognized. If the head is presenting and can easily be reached it should be extracted with forceps. Often it will be necessary to perforate it, for in many such cases the pelvis is deformed, the head is of unusual size or in an unfavourable position, and the child is dead or dying. Similarly, if the breech is accessible and one or both legs can be seized, the child should be extracted by traction, and if there is any difficulty with the after-coming head it should be perforated.

Another group of cases in which the course of treatment is obvious are those in which the child has entirely escaped into the abdominal cavity. In such cases the uterus has retracted and extraction per vaginam is evidently impossible, consequently, the fœtus must be removed by abdominal section. The cases which present the greatest difficulty are those where the child has partly escaped through the rent. In very many of these the presentation was originally transverse, but in some the head was the presenting part. Whatever the presentation is the head is the part which is generally through the rupture. In such cases the course to be pursued will

depend upon whether one intends to continue the further treatment of the case oneself, or to place the patient in the hands of another, be it in the woman's own home, a hospital, or a nursing home. The reason for this is obvious, in all probability the tear is firmly grasping the child, the child is acting as a plug. It should only be removed, therefore, when the operator is ready to proceed with the further treatment. Whoever takes charge of the further care of the patient will have to decide between removing the child per vaginam or per abdominem. If the child is dragged up after opening the abdomen infection is apt to be conveyed from the vagina. The vaginal delivery will be best accomplished by bringing down one or both feet feet, rarely will it be possible to complete it by craniotomy or decapitation. The cases in which the operator should choose the abdominal route are where the child's shoulders are beyond the tear.

The treatment of the lacerated uterus after the child has been delivered depends largely upon the variety of rupture. In cases of incomplete rupture plugging the tear is the best course. There are two ways of plugging the tear—it may be done tightly or loosely. The former method must be employed if the bleeding is at all severe, but the latter, especially if a drainage tube is inserted along with the gauze, gives better drainage. It is not necessary to douche out the tear before plugging. The gauze should be inserted with the cervix steadied by means of volsellum forceps.

In cases of incomplete rupture in which the abdomen is opened under the suspicion that the rupture is complete it is usually advisable not to remove the uterus but to plug the cervix from the vagina and close the abdomen.

A very pertinent question in connexion with this method of dealing with a ruptured uterus is the subsequent treatment of the organ, for the danger of rupture at a succeeding pregnancy is considerable, as recorded cases show. A ragged tear treated by plugging must always be followed by a cicatrix, which is liable to give way in a succeeding pregnancy, and not only in the later weeks but even as early as the fourth and fifth months. Probably the safest course to pursue in such cases is to remove the uterus some time after the patient has recovered from the accident. In the event of the patient having another pregnancy the accoucheur must make sure that she is kept under observation during the later weeks of pregnancy in case at any time the old tear gives way.

With the great improvement in technique and in the results of abdominal surgery it was not to be wondered at that good results were expected from opening the abdomen and removing the uterus or stitching the tear. But I fancy most of us who have adopted such a course have been not a little disappointed with the results. Without doubt a large number of cases have been saved by such treatment, three cases in my own list were successful and all other operators of

any experience have had occasional recoveries, but the mortality is still extremely high because of the unsatisfactory condition of the patient at the time of the operation and the sepsis that so frequently follows. Of my cases three died very shortly after the operation of shock and four of sepsis. One is not disheartened by death from shock for it is often impossible in this condition to prevent it, but it is very disappointing when a patient recovers from the shock and dies of sepsis. In my four cases which died of sepsis the patients died on the fourth, fifth, eleventh and thirteenth days respectively. It is not to be wondered at that septicæmia should so frequently follow. Many of the cases have been carelessly handled by incompetent midwives or practitioners, and the tissues have been much bruised, micro-organisms have been introduced and actually rubbed into the tissues during the various manipulations carried out, and the patients are exhausted by prolonged labour and loss of blood. Could anything be more favourable for infection occurring?

TABLE OF AUTHOR'S FOURTEEN CASES.

	Number of Cases.	Maternal Deaths.
Died unoperated upon (all complete)	2	2
Plugging (all incomplete)	3	0
Hysterectomy (Porro's) (incomplete)	1	1
„ „ (all complete)	5	3
Panhysterectomy (all complete)	3	2

Total maternal mortality for hysterectomy (9 cases, 6 deaths) 67 per cent.

When the abdomen has been opened for the purpose of extracting the child, or when abdominal section is decided upon after the child has been removed by the vagina, there are several modes of dealing with the uterus.

(*a*) Complete removal of the organ—panhysterectomy.
(*b*) Supravaginal amputation with retroperitoneal treatment of the stump
(*c*) Amputation of the uterus after Porro's method.
(*d*) Stitching the laceration and plugging.

Panhysterectomy is the most radical treatment.

Klien (*Archiv f. Gyn.*, 62 Ht. 2, p. 193), in his 38 collected cases, 1880—1900, states that total hysterectomy was performed 13 times and the mortality was 54 per cent. Eversmann (*loc. cit.*, p. 663) puts it at 54 per cent., while in my collected cases from English and Continental literature for three years, 1903—1905 inclusive, there were 7 deaths in 20, a mortality of 35 per cent. These latter figures, however, do not, I believe, represent the actual mortality from the operation. For statistical purposes, individual cases are of little value,

one requires to get a series of cases from different authors. At the present moment the operation of total extirpation has, I feel sure, a mortality of over 50 per cent.

The method of carrying out the operation is detailed elsewhere. It is the operation which I think will ultimately give the best results. The only treatment which comes into competition with it is simple stitching of the peritoneum and draining. I shall refer to this treatment later.

Panhysterectomy is theoretically the soundest treatment, because by this method one removes the uterus body and cervix, both of which are infected. If the cases of ruptured uterus which die of sepsis are examined it will be found that the sepsis is generally local. That being so the best thing to do is not only to remove the whole uterus but to pack the pelvis with iodoform gauze bringing the end out through the vagina, and leaving the gauze in for three or four days. I used to be afraid of leaving the gauze in so long, but I often do it now when I make a complete clearance of septic reproductive organs.

The operation which is most favoured when hysterectomy is performed is supravaginal amputation of the uterus with retroperitoneal treatment of the stump. In other words, the peritoneum is stitched over the stump. The steps of the operation have been already fully described. The advantages claimed for this method are that it is easier than total hysterectomy, takes less time, and so is attended with less shock. I think these advantages are largely theoretical, and I feel sure are more than counterbalanced by the effects which result from leaving the ragged infected stump of the cervix behind. Klien gives the mortality by this method in 50 cases as 46 per cent.

In Eversmann's collected cases the mortality works out at 51 per cent., and for my collected cases at 35 per cent.

My own experience has been very unfortunate. I have adopted this method of operation 7 times, but have had only 2 successes, a mortality of 71 per cent. Three died of shock a few hours after the operation, and the others of sepsis on the fourth, seventh, eleventh, and thirteenth days respectively. This is the great danger. In reading over the recorded cases it appears that the best results are obtained by simply bringing the peritoneum over the stump, not carefully stitching the latter, as described. The late Dr. Milne Murray (*Trans. Edin. Obst. Soc.*, vol. xxvii, p. 39) specially referred to that in a case he recorded shortly before his death. In addition to giving good drainage it saves time, so that the operation can easily be carried out in 20 minutes. The cellular tissue should also be drained by gauze loosely packed round a rubber drainage tube.

Formerly the removal of the uterus and the treatment of the stump, after Porro's method, was most favoured, but in recent years it has almost been given up, so that in cases collected from the

literature, 1903—1905, I found only 10 reported, with 50 per cent. mortality. Porro's method is a very crude method of treating the stump. The claim by Spencer, Fehling, and a few others, for its employment in certain cases of Cæsarean section where the uterine cavity is infected I can understand, but its employment in rupture of the uterus is of no advantage, for the cervix, the vaginal vault, and the cellular tissue are infected.

It is very probable that the last method—stitching the peritoneum—may come into favour, as it has been recently advocated by no less an authority than Zweifel, whose results from hysterectomy have been so unsatisfactory (*Hegar's Beitrage*, Bd. vii, p. 1). He advocates a very careful abdominal toilet, stitching the peritoneal coat, but is opposed to draining from the vagina. The method has this great advantage that it can be easily performed and may be carried out in the patient's own dwelling, as witness a most interesting case recently recorded by Down (*Lancet*, vol. ii, 1904), who not only saved the mother but saved the child. It is a mistake, however, not to drain, for there must be some infected material left in the peritoneum. Eversmann's figures indicate that the results are better when drainage is employed.

It is very questionable if stitching the whole thickness of the torn tissue is advisable, for it is not very sound surgery to stitch a lacerated infected wound.

Plugging and draining the tear, even although the laceration is complete, is favoured by several operators, and in this country has a strong advocate in Spencer. At the present time I believe it gives the best results. In one respect this is highly satisfactory, for it is the simplest treatment for the practitioner who has had no experience of abdominal surgery. Naturally, in all cases when this conservative method is employed, the accoucheur must make sure that all bleeding is arrested. Personally, I believe that complete removal of the uterus, with subsequent packing of the pelvis with iodoform gauze, will ultimately give better results.

Congenital Umbilical Hernia, with Notes of Case Successfully Treated by Operation.

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The rarity of this abnormality, and particularly of reported instances of its surgical treatment, render the publication of the following case advisable. Apart from the infrequency of this ailment, as judged by the recorded examples, the existence of a covering, which, from the moment of birth, commences to decay, and ultimately sloughs, is a factor which complicates and modifies the ordinary surgical treatment of umbilical hernia.

On the evening of the 9th of April, 1908, at about 6-30 p.m., a female infant was brought to the Glasgow Royal Infirmary accompanied by its father, who presented a note from the doctor present at the confinement. Dr. W. J. H. Sinclair's message was to the effect that on delivery he noticed the protrusion of bowel, and sent off the baby forthwith for surgical treatment.

When the baby arrived, I had just concluded an abdominal section for intestinal obstruction, and no time was lost in examining the patient. The need for immediate operative interference was evident on inspection of the abdomen, for the bowel lay exposed without any protection, and the cord, about 8 inches in length, was very thick, and was split longitudinally, on the upper surface, from the skin margin outwards about 3 inches. The proximal end of the cord was hollow to a like extent, and seemed to be lined with a definite membrane. The amount of bowel lying on the abdomen included the cæcum, appendix, about 4 inches of ascending colon, and the greater part of the small intestine. The bowel was of a brownish-red colour, partly inflated, and slightly adherent to the umbilical ring.

Replacement of the extruded bowel was attempted after the baby was anæsthetised with chloroform but without success. The obvious course was to enlarge the opening, and this was done by an incision of the abdominal wall in an upward direction. It was then possible to separate the adhesions fixing the bowel to the umbilical opening and to return the extruded viscera to the abdomen. The removal of the cord and closure of the opening was the next step in the procedure. It was rather a difficult point to determine what should be excised and what left. I excised all the gelatinous material, ligatured the vessels at the inner margin of the abdominal wall, and thereafter sutured the opening in two layers. The first included peritoneum and fascia, the second being confined to the skin. The

material was chromicised catgut, and the method in both layers was by continuous suture.

The after progress was uneventful until the third day, when an icterus neonatorum appeared, accompanied by a slight rise of temperature. The latter subsided in the course of a couple of days, and the child was dismissed on the 1st May, three weeks after the operation, having made an excellent recovery. As the lower part of the scar was rather prominent, pressure was applied by means of the binder.

The infant was seen on June 18th when examination of the abdomen showed the scar to be firm throughout with no trace of protrusion or weakness.

The family history of the patient, as supplied by Dr. Sinclair, is to the effect that "the mother was aged 42 years, big, well nourished though slightly anæmic, and has always had very fair health. She has had 9 children including the patient, all living, the first pregnancy being twins, and 3 miscarriages corresponding to the 3rd, 6th, and 11th pregnancies. The 11th pregnancy, that immediately preceding the present, resulted in abortion at the 4th month, and as there was some difficulty with the placenta, curetting of the uterus became necessary. There was nothing noteworthy in the present pregnancy or labour, except that the last five pains were severe, the strongest, she says, she has ever experienced. The presentation was normal. The child was born with 10—12 inches of bowel extruded through the umbilicus. The cord for the first 4 inches was considerably thickened, and contained a good deal of gelatinous matter. The thickening appeared to widen the aperture of the umbilicus. The extruded bowel which had a pale liver colour at birth, rapidly took on a dull brick red colour. An effort was made to return the bowel by manipulation, but unsuccessfully. The child was rapidly cleaned, carefully wrapped up, and dispatched to the Royal Infirmary."

"None of the patient's brothers or sisters show any developmental defect; the family of a nephew of the baby's father are also free from abnormalities. There is no history of any defective development on either parental side."

Though this variety of congenital malformation is exceedingly uncommon, it is difficult to estimate its frequency from the recorded cases. Macdonald[1] records 19 cases in which operative procedures were undertaken, with but 2 deaths, and refers to 12 cases collected from various sources, treated by pad and compress, of which 9 died and only 3 recovered. That collection of 31 cases includes those in which the cord had ruptured as well as those in which the bowel was not exposed.

Since then, however, a considerable number of cases have been published, some of them in journals difficult of access, and inasmuch

as these may include cases of funicular hernia, present at birth, and cases of hernia into a stretched and distended umbilical cicatrix, it is hardly possible to differentiate them in tabular form.

The presence of a covering, which, in the natural course must decay, or the rupture of that covering with exposure of the bowel, are factors which are absent from all other varieties of umbilical hernia and which complicate the treatment so materially that congenital herniæ should be classed by themselves.

The deciduous matter must be removed; should delay occur, it becomes adherent to the intestine which it covers, and its removal is rendered difficult, the danger of peritoneal infection will be enormously increased and the prognosis correspondingly grave. Immediate operation is therefore imperative in order to avoid adhesion and infection.

The cases in which the cord ruptures during birth, exposing the bowel, are still more serious, for the peritoneal cavity and the intestines are already exposed to direct infection from the outside, and here too, prompt operative procedure affords the only chance of recovery.

A classification of umbilical hernia which serves the purpose, though the congenital variety should be first, is that given by Hicks.[2]

1. Due to weakening of the umbilical cicatrix in children.
2. Due to protrusion through apertures about the umbilicus in adults.
3. Congenital or exomphalos.

This last is, he says, an exceedingly rare condition due to the imperfect closure of the abdominal walls so that the whole of the intestine is not accommodated at birth, but some of it is found in a cavity in the umbilical cord, which is bulbous and enlarged. He records a case in which he operated. The cord had been tied by a midwife, clear of the hernia, and sloughed off at the twelfth day, leaving the knuckle of bowel unprotected. The hernia increased in size, and adhesions formed between the bowel and the umbilical ring. Resection of 6 inches of ileum was necessary and the child recovered. Hicks calls attention to the danger of tying the bowel in the ligature of the cord if the condition is not observed, in addition to the liability to sepsis.

Another peculiarity of these herniæ is mentioned by D'Arcy Power,[3] in that no parietal peritoneal covering is present to protect the bowel from the infection of a gangrenous cord. He reports that he operated two days after birth on a case in which the bowel was adherent, and the patient died in 24 hours; and notes that he had previously seen two similar cases. Judging from the case presently reported it is very difficult to tell when operating, the point where parietal peritoneum merges into the lining membrane of the cavity of the cord.

M. de Larabrie[4] reported a case, similar to the present one, to the Surgical Society of Paris, and mentioned another in which the doctor simply returned the bowel, and the patient lived but had an intestinal fistula. In the course of the discussion M. Berger remarked that the second case had the further deformity that the umbilical vesical was persistent. (See also references 14 and 19.)

It is a common experience to find more than one error of development in the same infant, but the observation of M. Berger and the two cases of ruptured congenital umbilical herniæ recorded by Morshead,[5] in each of which a Meckel's diverticulum was the seat of intussusception, are rather examples of different degrees of incomplete development of the same part, as are also the cases of Bilhaut,[6] in which part of the liver was included in the hernia, and Veron,[7] where there were many malformations of the intestines. Other cases are reported in which different developmental deformities were present. (See 8 and 9.)

Two systems of classification are permissible in these congenital cases, one taking note of the stage of incompletion of the development,

1. Hernia into a cavity in the funis.
2. Hernia with patency of the umbilical vesicle.
3. Hernia with patency of the urachus.
4. Hernia with other intestinal deformities.
5. Hernia with marked incompleteness of the abdominal wall.

or the more practical one of differentiating between the complications of the first and most common variety.

1. Funicular hernia with its covering intact,
2. Ruptured funicular hernia,
3. Irreducible funicular hernia, and
4. Strangulated funicular hernia.

Of this latter table the first two varieties are apparent on inspection. The reducibility becomes obvious on attempted replacement but, since it is not possible to determine in an unruptured case whether the bowel is merely anchored by adhesions, prevented from returning by the constriction of the umbilical opening, or really strangulated, and as the remedial measures also include the removal of the cord, it is evident that the wise plan is to open the unruptured sac and inspect the bowel, rather than to attempt any but the most gentle taxis.

The obstructions to the return of the extruded bowel are adhesions and undue contraction of the umbilical ring. In recent cases, *i.e.*, at birth or within a few hours after birth, the adhesions are found between the umbilical ring and the bowel, and they are probably due to the encroachment of the contracting ring on the pre-existing space. In the strangulated complication the chief factor seems to be the same.

When a longer period has elapsed between the birth of the infant

and its treatment a new set of adhesions form between the devitalized cord and the bowel, and it is this variety of adhesion which constitutes the greatest menace to the child's ultimate recovery, for the adhesions are of so intimate a nature that their removal is difficult and in some cases impossible, so that resection of bowel is preferable to the return of bowel with adherent decaying matter.

The operative measures, then, consist in opening the sac, if it has not ruptured during birth, and inspecting the contents. If the bowel shows no sign of strangulation it may be gently pulled outwards in order that adhesions may be freed and the part of the bowel situated at the ring examined. It should then be returned through the original opening if that is possible. In cases where the opening is too small, where the adhesions are not readily separable, or where there are signs of strangulation, it is well to enlarge the opening, upwards, in the middle line. An incision of two or three inches enables the surgeon to return the bowel in the simpler case and to inspect the adhesions in the other cases by everting the edges of the wound and the umbilical opening. The involved bowel may be freed and brought out of the wound for careful examination. It is treated according to its condition, restored to the abdomen if considered viable, or excised if necessary.

The closure of the abdomen must be preceded by removal of all the deciduous matter of the cord. In the case reported the amount of thickened cord was considerable and was removed flush with the parietal peritoneum. The vessels were ligatured as a precaution, but on consideration this is hardly necessary, for the closure of the opening by sutures will control any hæmorrhage. The abdominal opening was sutured in two layers just like a median laparotomy, and in this connexion it is interesting to note that Macdonald[1] inserted a deep purse-string suture in the umbilical ring and remarked that he would not again employ that method. It seems unnecessary to resort to the more complicated methods used in the radical cure of other forms of umbilical hernia, since the simpler treatment suffices; and there can be little doubt that a minimum period of operative interference and of anæsthesia makes for success in the surgical treatment of infants whose unstable nervous equilibrium renders them susceptible to shock and excessive reaction.

In the cases where there is a persistence of the vitelline duct the treatment of this complication will depend upon the amount of patency, whether limited to the bowel end as a Meckel's diverticulum, shut off from the bowel end but open to the umbilicus, or closed at both ends forming a cyst. A comprehensive study of this condition is given in Ballantyne's *Antenatal Pathology*,[9] and there is an interesting article by Gallant[10] dealing with umbilical fistula, under the divisions (1) fecal, (2) gastric, (3) biliary, (4) hæmorrhagic, and (5) urinary, with many useful references.

The nomenclature of this affection has already been mentioned in connection with classification of umbilical herniæ given by Hicks,[2] and preference was given to a term which would differentiate between a hernia present before, or at birth, and the herniæ occurring later. The term employed by Ballantyne (loc. cit., p. 523), hernia funiculi umbilicalis, implies that the condition is congenital, and is quite satisfactory from a surgical point of view. The fourth edition of the *Nomenclature of Diseases*,[11] the British standard nomenclature, recognizes only the word "umbilical," though, on the same page, it differentiates between congenital, infantile, and other forms of inguinal hernia. So, too, in the medical indices and in text-books, there is an absence of differentiation which causes confusion and renders research difficult.

Congenital umbilical hernia differs in many respects from the other forms of umbilical herniæ, and if there were no other reason than the presence of the decaying cord and the danger of delay, it should be put in a class by itself.

The ætiology of congenital umbilical hernia forms a very interesting subject of discussion in Ballantyne's treatise (p. 527). He mentions the theories of (1) pressure or mechanical action, (2) the doctrine of disease, such as peritonitis with adhesions, and (3) the embryological theory of arrested development; and after reviewing our knowledge of the development of the abdominal organs and the means by which the intestine is withdrawn from the cord into the abdominal cavity states his belief "that the causes operating in hernia of the cord and in gastroschisis differ not so much in nature as in the time in embryonic life when they come into play." The presence of adhesions existing at birth in the present case, and in many reported cases, might be taken in support of the second view were it not that the adhesions were limited to the umbilical ring and were possibly due to the narrowing of that orifice causing friction and perhaps some obstruction to the circulation in the gut.

The practical aspects of this disease, as observed in the present case and in the experiences of other observers, may be shortly stated in the following lines:—

Congenital umbilical hernia differs from other umbilical herniæ in that it has no covering of parietal peritoneum, but is contained in the hollowed cord; that this cord, instead of being a protection, becomes a danger to the bowel by adhesion and infection; that this danger increases with the hours that elapse after birth; that the cord may rupture during birth and so expose the bowel to outside infection; and that the whole cord must be excised. In addition to these there may co-exist other errors of development such as persistence of the vitelline duct in a number of forms and similar urachal deformities.

It is noteworthy that immediate operation offers a great measure

of success, and the favouring factors are the absence of microbic invasion in the newly born, the removal of the cord before adhesions and infection set in, the short duration of the operation in the absence of adhesions to the cord and the consequent minimal shock.

Delay in commencing operative treatment allows of infection of the infant's skin, of adhesions forming between the cord and the bowel and thereby of direct infection, necessitating a prolonged operation and in some cases more formidable surgical procedures such as enterectomy, with a corresponding amount of surgical shock.

The operation consists in opening the cord, if it has not already ruptured, to inspect the bowel and withdraw it slightly to look for adhesions and to examine the constricted portion of bowel. If there are no adhesions and the bowel is intact, it may be returned to the abdominal cavity, after washing it with sterile water in the ruptured cases. When the bowel cannot be withdrawn on account of adhesions, or if there are signs of strangulation, the umbilical opening should be enlarged upwards in the middle line and the edges everted so that the adhesions can be seen and separated. When the bowel has been returned the attachment of the cord should be removed, and the vessels of the cord may be ligatured at the peritoneal margin or included in the first suture of the opening.

The method of suture will depend on the size of the opening and the practice of the surgeon, preference being given to the simpler methods so as to save time.

The occurrence of other errors of development complicating the hernia requires special treatment depending on the nature of the lesion. The after treatment requires no special mention either in the matters of dressing or alimentation.

It will be obvious from the foregoing that the initiative and a great measure of responsibility lies with the physician, or midwife, who is in charge of the confinement, and in the present case great credit is due to Dr. Sinclair, Barlinnie, for the prompt action in protecting the bowel and in sending the patient for surgical treatment immediately after birth.

In conclusion I may be permitted to append a table of classification based on the order of occurrence of umbilical herniæ.

HERNIA—UMBILICAL.

I. CONGENITAL.
- (1) Congenital, *i.e.*, hernia into a cavity in the cord.
- (2) „ with patency of the omphalo-mesenteric duct.
- (3) „ with patency of the urachus.
- (4) „ with other intestinal deformities.
- (5) „ with marked incompleteness of the anterior abdominal wall.

II. INFANTILE.

III. ACQUIRED.

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SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).

I.

Primary Carcinoma of the Fallopian Tube.

By J. E. Gemmell, M.B. (Liverpool).

J.O., æt. 45, married 28 years, nullipara, was sent to me from Holyhead, on July 2nd, 1907.

History. The patient complained of pains in the abdomen and constant, yellow, offensive discharge.

The trouble commenced with a free, white, vaginal discharge twelve months ago, which later became yellow in colour, watery in consistence, very offensive and very profuse. The quantity of the discharge has been such as to keep her constantly "wet" night and day, and she states that she has become much thinner.

During the last six months she has suffered considerable pain in the abdomen; first referred to the right iliac region, but later mainly to the left iliac region, and described as being a more or less constant pain, not severe, but "like something gathering." Several times the pain in the abdomen has necessitated rest in bed, and the use of local hot applications for its relief, and has, she thinks, been accompanied by enlargement of the abdomen.

Menstruation. Commenced at 13, regular; of the 28-day type, lasting seven days, and the discharge used to be *profuse*. Since the constant watery discharge commenced, there has been only a "slight show."

Examination. The abdomen is swollen, the enlargement being in the hypogastric region, the swelling reaching to a point about one inch above the pubes, and being more marked to the left of the middle line. On palpation this is felt to be hard, and is very tender.

Per Vaginam. The cervix is nulliparous, hard and nodulated, the nodules being about the size of peas, above this and almost filling the true pelvis, is a hard fixed mass, "knobby" in parts, apparently continuous with the cervix, mesial in position but extending upwards and to the left, reaching above Poupart's ligament; the left appendages cannot be made out, but the right appendages are enlarged, the swelling being about the size of a hen's egg.

Diagnosis. The diagnosis was that of multiple fibromyoma uteri, with chronic inflammatory disease of the right appendages and with the history of fœtid watery discharge, it was thought that there was a submucous sloughing fibroid present.

Operation. On opening the abdomen the lumps felt in the pelvis were seen to be enlarged, distended, Fallopian tubes, which were firmly adherent to the floor of the pelvis and to the back of the uterus, the enlarged appendages and uterus forming together the solid, hard, irregular, fixed tumour felt on vaginal examination. There was no ascites. The dissection necessary to free the appendages was difficult, and the right tube and ovary were first removed and then the larger left tube and part of the left ovary, the ovary being cut through on separation of the tube. The abdomen was closed in three layers, with catgut suture, and the subsequent convalescence was uneventful, with union of the wound by first intention.

Specimen. The right tube was closed at its fimbriated end, distended, to about the size of a hen's egg, with clear fluid (simple hydrosalpinx); the ovary was adherent to it, not enlarged and apparently normal.

The left tube was sausage-shaped, closed at its fimbriated end and so much distended that its diameter measured 3 inches, whilst at the uterine end the diameter was 1 inch.

On incision, the tube was seen to contain pus in considerable quantity, and the mucous membrane was enormously thickened and swollen, forming papillary processes having the appearance of pink-coloured active granulation tissue bathed in pus and increasing the thickness of the mucous membrane to about $\frac{1}{2}$ inch. (Papilloma of Doran.)

The portion of the left ovary attached to the tube was normal, neither ovary was enlarged. Now the diagnosis became that of chronic inflammatory disease of the appendages, probably of a gonorrhœal infective origin, resulting in papilloma of the tube.

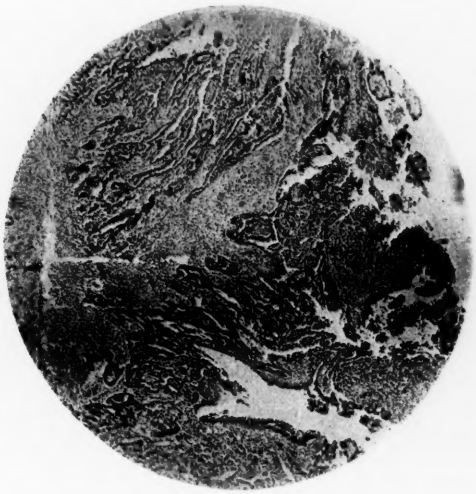
Histology. Microscopical sections were prepared for me by Dr. H. Leith Murray. Section, of the left tube, demonstrated the papillomatous growth to be adeno-carcinoma.

The endosalpinx shows great proliferation of the epithelium throughout the whole of the section; the cells are piled up in many layers and show great variation in size of the nucleus and considerable vacuolation. There is practically no penetration of the muscular layers, which, however, show some deposit of small round cells similar to those in the malignant processes of the endosalpinx.

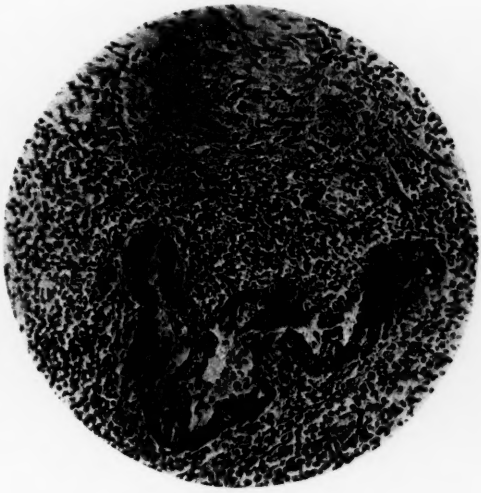
Right tube, simple salpingitis, ovaries normal.

Note.—Cancer of the Fallopian tube, either primary or secondary, is apparently of rare occurrence, and there is no record of any case of primary cancer of the tube prior to that of Orthmann in 1888,

PRIMARY ADENO-CARCINOMA OF THE FALLOPIAN TUBE.



Objective $\frac{1}{3}$.



Objective $\frac{1}{6}$.

probably due to the fact that abdominal exploration was not practised so frequently up to that time.

Personally, out of 90 cases of hysterectomy, vaginal or abdominal, for cancer of the cervix or uterus, in only 3 have I found the appendages involved secondarily, and of 12 cases of ovariotomy for carcinoma of the ovaries, in none were the Fallopian tubes implicated.

The study of primary cancer of the Fallopian tube has been made easier by the papers of Doran, contributed to the *Journ. of Obstet. and Gyn. of the Brit. Emp.*, and especially by the collection and tabulation of 60 cases in vol. vi, 1904, since which several cases have been recorded by different surgeons, and Orthmann, in March 1907, published a list of 84 cases.

Neoplasms of the tube were thought to be of very little practical interest, because they were generally small, could not be diagnosed and, when found, did not seem to be doing much harm, and generally were discovered with affections of greater importance in neighbouring organs; their own importance being thus overshadowed.

Cancer *secondarily* to the ovaries does not occur until late, and frequently has been preceded by the adhesion of a tube, into which the malignant growth from the ovary has made its way by direct extension, the serous coat of the tube being invaded and the growth in the lumen of the tube being really free from the mucous membrane. When the cancer develops in the mucous membrane of a normally formed tube, whether, from malignant change in a papilloma or directly from the tubal mucous membrane, is a controversial point—but the balance of opinion seems to be in agreement, that a predisposition to cancer of the tube, may usually be traced to inflammatory changes, the coincident papillomatous growth of the mucous membrane paving the way for the malignant change.

The occurrence of the disease in the middle and external portions of the tube, indicates that it is a sequel to inflammatory trouble.

Macroscopically it is difficult to distinguish between exuberant inflammatory product and new growth.

Tédenat states that in chronic endosalpingitis, we see papillomatous, villous, arborescent, cauliflower masses, identical to the naked eye with new growths, the innocence or malignancy of which cannot be determined in their early stages, except by the aid of the microscope.

The disease is generally unilateral, but may be bilateral, and the growth, although commonly limited, may be diffuse.

Clinically. The history usually is that of a patient about 45 years of age and onwards approaching the menopause, who has suffered from long-standing pelvic inflammatory troubles, and with some recent pelvic pain.

Discharges, varying in quantity, often profuse, sanious or watery, and with some abdominal swelling.

The pelvic tumour rarely reaches above the pubes, and ascites is not always present.

The diagnosis is seldom made: most frequently the swelling is thought to be a pyosalpinx and, in several of the cases, as in this, the tumour has been looked upon as myomatous.

There is no doubt that in cases where cancer of the tube is suspected, the best line of treatment is complete removal of tubes and uterus.

In this instance, the tubes were removed entire, the case being considered one of pyosalpinx, and it was not until the operation was completed that the papillomatous growth was seen in the tube, otherwise I should have adopted the radical operation.

I base my diagnosis of primary carcinoma upon the evidence of the microscopical section of the tube: the clinical signs: and the macroscopic appearance of the ovaries and right tube.

In a letter dated March 16th, 1908, patient states she has been very well, and is better at present than she has been for many years.

Recurrence and metastases are said to be rapid and fatal, yet Boxall recorded a case of carcinoma of the tube, secondary to carcinoma in the ovary, where there was no recurrence five years later.

II.

A Case of Bilateral Tuberculous Salpingitis, with Remarks on the Treatment of Genital Tuberculosis.

By Frederick J. McCann, M.D. (Edin.), F.R.C.S. (Eng.), M.R.C.P. (London).

A spare, delicate-looking woman, aged 30 years, was sent to me on account of a more or less constant aching in the sacral region. For this complaint she had had much medical treatment, and had worn several pessaries without benefit. She had been married for ten years and was sterile. Her monthly periods were regular in duration and quantity. No family history of tuberculous disease could be obtained.

Abdominal examination revealed nothing abnormal, but bimanually the posterior quarters of the pelvis were found to be occupied by a transversely elongated elastic mass exhibiting at one spot definite fluctuation. The uterus, not enlarged, could de distinguished in front of the swelling. A diagnosis of pyosalpinx was made, and operation recommended.

On opening the abdomen a small amount of ascitic fluid was discovered, and the intestines occupying the lower portion of the abdominal cavity were studded with numerous grey miliary tubercles, whose presence was also noted on the peritoneal surface of the uterus. It was then seen that the swelling felt bimanually consisted of two dilated Fallopian tubes, adhering close together and sealed at their fimbriated extremities. The larger swelling was situated on the right side. After careful separation the left tube and ovary were brought up through the abdominal incision, and as the ovary was found to be free from disease the tube only was removed. The larger swelling on the right side was now separated and brought into the wound, and as the right ovary appeared to be healthy it was not removed. The vessels in both pedicles were separately ligatured with fine linen thread, no transfixion being employed, and then covered with peritoneum, catgut being used as the suture material. The pelvic cavity was cleansed and the abdominal wall closed. Special care was taken during the operation to prevent infection of the abdominal wound. The patient made an uneventful recovery, the abdominal wall healing soundly.

Description of Specimen.

The right Fallopian tube measured $3\frac{3}{4}$ inches in length and $2\frac{1}{4}$ inches at its widest portion. It was convoluted and dilated, the dilatation being most marked in its outer half. The abdominal

ostium was completely sealed. The dilated tube was filled with a thick yellow purulent fluid and the tube wall was thickened. On the peritoneal surface a number of small grey miliary tubercles were present.

The left Fallopian tube measured $2\frac{3}{4}$ in. and $1\frac{1}{2}$ in. at its widest portion, which was towards the ampullary extremity. It was not so convoluted as that on the right side. The ostium abdominale was sealed, and there was thickening of the tubal wall. The contents of the tube were purulent in character, and miliary tubercles were scattered over the peritoneal surface. The accompanying figures represent the parts removed (natural size). The difference in size of the two tubes and the more marked convolution in the right tube are striking features.

Many more examples of tuberculous disease of the Fallopian tubes are now recorded because of the increased frequency with which tubal diseases are treated by abdominal operation. The special interest attaching to the case here narrated is the apparent localisation of the disease to the lower segment of the abdominal cavity. Miliary tubercles were present on the peritoneal surface of the lowest coils of small intestine and on the sigmoid colon. The peritoneal surface of the uterus was also studded with tubercles. For this reason it is probable that the disease originated primarily in the Fallopian tubes, causing closure of the abdominal ostia and subsequent pyosalpinx. In addition, the infection had spread to the lower portion of the abdominal cavity. On the other hand the Fallopian tubes may remain apparently free from infection as far as the unaided eye can tell, even when tubercle is disseminated through the abdominal cavity. I have lately operated on three cases of abdominal tuberculosis, in which an inspection of the Fallopian tubes and uterus failed to detect any evidence of tubercle. One of these cases was specially interesting and instructive. A woman, aged 45 years, was sent to me complaining of pain and swelling in the right iliac region, varying in severity, which had persisted for several years. On bimanual examination a mass was felt separate from the uterus, occupying the level of the pelvic brim on the right side, which, I thought, was composed of the vermiform appendix adherent to the right appendages. I therefore opened the abdomen in the right linea semilunaris, and found that the mass was calcareous with omentum and intestinal coils adhering to it. The vermiform appendix was easily separable, and was not removed. I separated the omentum and intestinal coils and removed the mass which was irregular in outline and stony hard, being $1\frac{1}{2}$ in. by 1 in. in size. There were numerous adhesions throughout the abdominal cavity, but on inspecting the uterus and appendages no disease was apparent. The abdominal wall was closed in layers. The patient recovered. The pain from which she suffered has been completely removed, and she

writes to say she "has never felt so well for years." Cases such as these serve to emphasize the importance of remembering the possibility of tuberculous disease being the cause of persistent and obscure abdominal pain, especially if associated with occasional elevation of temperature.

A growing tendency towards conservative surgery is now apparent in the treatment of genital tuberculosis. This is destined to increase with advancing knowledge concerning the curability of many varieties of tuberculous disease. Nothing is more remarkable than the rapid cure which certain forms of abdominal tuberculosis undergo after a simple exploratory operation. Further the success which attends even partial removal of tuberculous disease, leaving Nature to complete the cure, further strengthens the plea for the employment of conservative measures.

It is curious how frequently the ovaries have been reported healthy when examined after the appendages have been removed for tuberculous salpingitis. If there is no evidence of tubercle in the ovaries they certainly should not be removed, and if the infection is only slight there is still no reason why they should be sacrificed, for tuberculous foci can, if necessary, be excised. When the disease is advanced, and has already destroyed the function of the ovary, radical treatment is necessary.

The formation of a pyosalpinx is a definite indication for surgical treatment, which is best effected by the abdominal route, as this permits a thorough inspection of the pelvic contents, and has the additional advantage which opening the abdominal cavity undoubtedly possesses in the treatment of abdominal tuberculosis. Incision and drainage of the pus sacs from the vaginal aspect is now recommended and practised, and may yet be shown to be productive of good results.

Aspiration of the pus sacs followed by the employment of an appropriate vaccine would seem to be the ideal treatment.

When the uterus is only slightly involved, *e.g.*, miliary tubercles being evident on its peritoneal surface, it should not be removed, as it is illogical and unscientific to remove this organ whilst leaving undisturbed a widespread infection of the intestines, omentum and mesentery.

Those who argue in favour of a complete excision of the internal genitals, compare tuberculosis with cancer, and consider that the same treatment is indicated for both. The two diseases are, however, entirely different, for in tubercle a cure is frequently obtained by medical treatment, by simple exploratory incision opening the abdominal cavity, or by partial excision of the diseased area. In cancer, on the other hand, there is no such process of repair, certainly not when the internal genitals of the human female are involved. For these reasons I think the time has arrived when our position with

regard to the treatment of tuberculosis of the internal genitals in the female requires reconsideration, and that more conservative methods should prevail in the future.

Moreover, the surgical treatment is only a part of what is required to effect a cure in the majority of the cases. All such patients for months or even years should, as far as is possible, enjoy plenty of fresh air and sunlight, and a suitable dietetic regimen should be prescribed for them.

Description of Figures.

Figure 1. The right Fallopian tube, natural size, posterior surface. Note the marked convolutions, the complete closure of the abdominal extremity, and the miliary tubercles on the peritoneal surface. A bristle has been inserted into the uterine end of the tube.

Figure 2. Left Fallopian tube, natural size, posterior surface. Note the closure of the abdominal end of the tube and the presence of miliary tubercle on the peritoneal surface. A bristle has also been inserted into the uterine end of the tube.

Microscopic sections from both tubes showed well-marked giant cell systems.

Fig. I.

Fig. II.

Obituary.

CHARLES JAMES CULLINGWORTH,
M.D., D.C.L., LL.D., F.R.C.P.,

Consulting Obstetric Physician to St. Thomas's Hospital, and Editor of this Journal.

(Second Notice.)

MANCHESTER (1871—1888).

I.

Dr. Cullingworth's professional career of about twenty years in Manchester began with his appointment to a resident's post on the medical side in the Royal Infirmary. After holding this appointment for about two years he started in general practice in Chorlton-on-Medlock, without any apparent advantages in the inevitable competition for professional employment. This was in 1871. Next year he was appointed Surgeon to the Police. This post was in those days merely that of club-doctor to a division of the city police, and special knowledge of forensic medicine was not a necessary qualification for appointment. It is much to the credit of the Watch Committee of that day that they had the discrimination to select Dr. Cullingworth. Medico-legal workwas not formally included in the duties of the officer, but the connexion with the police brought opportunities of which Dr. Cullingworth was prompt in taking advantage. Although no important medico-legal incidents occurred calculated to attract attention to the police surgeon, it became generally known to the medical profession in Manchester that Dr. Cullingworth was directing special attention to medical jurisprudence, and it was also recognized that when opportunities presented themselves he showed great capacity for medico-legal investigations, and he acquitted himself admirably as a medico-legal witness when called upon. It was consequently almost a foregone conclusion that when the Lectureship on Forensic Medicine at the Owens College School of Medicine became vacant, Dr. Cullingworth was selected for the post. This was in 1879. He proved himself to be a most excellent teacher. He was painstaking and precise in his lectures, and spared neither time nor trouble in their preparation. Owing to the College obtaining a supplement to its charter in 1883, conferring the right to grant medical degrees, the Board of Studies required an Honorary Secretary in the Department of Medicine, and everything in his record pointed to Dr. Cullingworth

as the man for the post. He undertook the duties and held the appointment until the time when he left Manchester in 1888. It was part of his labours in this position to assist in arranging for the first medical degree examinations in the College, and he was himself the first Internal Examiner in Forensic Medicine.

In 1873 Dr. Cullingworth had been appointed to the Honorary Staff of St. Mary's Hospital for Women and Children and Lying-in Hospital. It speaks volumes for the personality of the man that he received the appointment without having any appreciable previous experience or having showed any special interest in midwifery and diseases of women. But after once settling down to work he exhibited the same qualities that from police surgeon had brought him the reputation of an able and efficient medical jurist. His characteristic industry and devotion to duty acquired for him in the course of a few years a considerable reputation as a gynæcologist and obstetrician, but his chief interest and achievements were as a gynæcologist: he never appeared to put his heart and his energies into midwifery work, either hospital or private.

When Professor John Thorburn died in 1885, and the Chair of Obstetrics and Gynæcology at Owens College became vacant, there was hardly any serious competition for the appointment of a successor. The question of inviting a distinguished obstetrician from outside Manchester was never entertained, and the Lecturer on Forensic Medicine was elected to the Professorship of Obstetrics and Gynæcology. In the performance of his duties he showed all the excellent qualities of which the profession in Manchester were already cognizant. His lectures were admirably clear and comprehensive, delivered out of the fulness of knowledge and unimpaired by any old-fashioned artificiality and conventionalism. He spared himself no pains in giving his students the best scientific information that was available at the time, and trying by the example of strenuous work and a high standard of professional morality to prepare them for their future duties in life. But it must be admitted that his teaching was almost purely systematic. He did little or nothing during fifteen years of opportunity to improve the teaching of clinical midwifery in the Manchester Medical School. He was not a weakly amiable man, but he was eminently conciliatory and, even if he had wished to work a revolution, he would probably have found the *vis inertiae* of the time too strong for any reforming zeal. But if students of medicine were left to the traditional spirit of the place it was vastly different with midwives. Dr. Cullingworth appears to have been early impressed with the deplorable ignorance of the local midwives, and he was one of the early advocates of the education, registration and medical control of midwives in the calling or profession. Dr. Cullingworth's vast services to the community in helping to bring about the

social and professional reforms which are now developing to full fruition under the administration of the Midwives Act can never receive too full and grateful recognition by the medical profession and the public. With characteristic moral courage and indifference to personal consequences he advocated in the early days of the struggle in Lancashire the reform, as against the abolition, of the midwife, and consequently suffered a good deal, in reputation and otherwise, at the hands of a section of opponents who did not make the discussion of the questions a matter of pure reasonableness. He carried the advocacy of the cause which had his strenuous and eloquent support to London, where he had a freer hand and more sympathetic and powerful supporters and colleagues. In looking back on the deplorable history one cannot but reflect that if the leaders of the general practitioners of England had been endowed with the foresight and judgment of the man whom some of them so bitterly opposed, it would have been that wonderfully clear and comprehensive fair and practical Midwives Bill which Dr. Cullingworth drafted shortly after going to London which would have become law, instead of the defective measure of 1902 which was not so successfully obstructed.

During the years between 1873 and the end of his sojourn in Manchester, Dr. Cullingworth was able to confer great benefits on the profession throughout a wide area while working strenuously in a calmer professional atmosphere. His devoted, persevering, and disinterested work for the Manchester Medical Society must be almost unique in the history of such societies in this country. The vast library of the Medical Society was *rudis indigestaque moles* when he tackled it in 1873. By untiring labour of his own, and by enlisting casual assistance from time to time, he completed the stupendous task of creating order where chaos previously reigned by making an admirable catalogue of the library. Dr. Cullingworth's interest in old medical writings was largely due to the fact that the Manchester Medical Society's Library is probably unique as an *Antiquariat*, among the provincial medical libraries of the United Kingdom. In this self-imposed enterprise he was greatly aided by the special knowledge and zeal of Mr. Thomas Windsor, a member of an old Manchester medical family.

In his capacity of Honorary Secretary of the Manchester Medical Society, a post which he held for many years, Dr. Cullingworth was of the greatest service to the medical profession throughout a wide area in South Lancashire. His untiring devotion to the welfare of the Society, the precision and exactitude of his methods, and his tact and conciliatory ways kept the Society united, flourishing and efficient, long after many centrifugal forces were at work. The foundation of other societies, to some extent supplementary and

competitive, if not antagonistic, was owing to no fault of the honorary secretary's. It was the outcome of evolution; a great increase in the medical profession numerically, and a greater interest in the developments of medical science. If Dr. Cullingworth had taken to politics and gone into Parliament his qualities might have brought him into the position of an admirable whip to the party of his choice.

In the obituary notices which have appeared we have seen no reference to the part Dr. Cullingworth took in the foundation of the *Medical Chronicle* of Manchester. He was one of the first to join the group of local medical men who established that medical journal, and he was one of its most zealous and influential supporters by pen, by counsel, and by executive work. Among others of the company of founders, to mention only the chief of those who have been lost like himself to the profession, were Sir William Roberts, Dr. Daniel Leech and Dr. James Ross. The *Medical Chronicle* produced a revolutionary change in the interest of the medical profession in medical science and practice in the centre from which it was issued. Any one who is old enough to remember the transactions of the Manchester Medical Society before the establishment of the *Medical Chronicle*, and can compare the proceedings and the subjects considered of interest a few years later, must bear witness to the immense influence of the journal in raising the standard of professional thought and achievements; and Dr. Cullingworth was a great part of that influence. Busy as he always was with professional work. Dr. Cullingworth was no mere day-labourer in the professional sense. He was many sided in his interests both professional and social. Still keeping to the fringe of the professional we would recall his literary work on the history of medicine including the life of Sir Charles White of Manchester, one of the founders of St. Mary's Hospital. He had a keen appreciation and a wide knowledge of the best of English literature. Among his prime favourites was Oliver Wendell Holmes. There must have been some intellectual and moral affinity between Cullingworth and the Autocrat of the Breakfast Table in many things. It is perhaps not going too far in the way of criticism to suggest that the admiration for the man of letters carried Dr. Cullingworth a long way in his partiality in giving credit for originality to Wendell Holmes in his "Essay on Puerperal Fever." It is, however, in this connexion a pleasure to record that Dr. Cullingworth was one of the most ardent and useful English supporters of the European movement of which the object was to raise a memorial worthy of the services of Semmelweis to obstetric science and to humanity. Still, we cannot help reflecting and thinking, if Oliver Wendell Holmes had not obstructed his vision, and Cullingworth had looked into the history with freer thought and a wider outlook he might have found nearer home some founders of the modern science and practice regarding puerperal fever many years before Holmes

and Semmelweis. But that is another story: a chapter in the history of English obstetrics which has yet to be written.

Dr. Cullingworth was a man of genius, if the faculty for taking pains be a true definition of genius. He was most exact, painstaking and punctilious in all his actions whether social or professional. He set up for himself a high standard of duty, and he did not hesitate to admonish his friends when, in his estimation, they fell short of it in the performance of any of the minor details in the reciprocities of social or professional intercourse. For the less intimate he had occasionally a genial sarcasm which seldom caused resentment. He was one of the most just of men, and made scant allowance for any shortcomings in the weightier matters of professional conduct and integrity, and he appears to have applied the same standard of professional integrity to himself in the most frank and rigid manner. Hence the untiring industry in unremunerative work which the sense of public duty imposed upon him: hence the constant adherence to what he conceived to be the truth in word and action which is perhaps not the shortest way to great success in gynæcology if the criterion of success is made the result in emoluments.

Upon the whole it may be said that Dr. Cullingworth left behind him in Manchester among those who knew him fairly well but not very intimately, the impression that he was a genial, gifted, cultivated, unselfish, and honest medical practitioner, consultant and teacher, whom all respected and many loved.

II.

St. Thomas's Hospital (1888—1904).

The death of Dr. Cullingworth is mourned by all his old pupils at St. Thomas's Hospital as the loss of a beloved and revered chief.

The characteristic of his teaching, as of all his other work, was the ungrudging labour bestowed upon it both in the ward, in the operating theatre, in the out-patient department and in the lecture-room. He shewed by his own work, as well as by his teaching, the necessity for taking infinite pains and giving accurate attention to minutiæ. Even if his students criticized as elaborate his system of note-taking, the advantages of raising this part of the work from a mere perfunctory routine and of teaching accurate expression in the fewest words and in good English, were generally recognized, and the habit of mind thus engendered has proved a most useful asset to his pupils in all their professional work. Moreover his enthusiasm and his power of sympathising with the difficulties of those whom he was teaching, held the attention of students even if the subject was one which had little attraction for them.

His teaching did not end with student days. His advice and help were ever ungrudgingly at the service of his old pupils, and he followed their work with interest and their successes with the keenest satisfaction.

And last, but by no means least, his teaching extended to the nursing department of his ward, and, through his writings, to a wider sphere of the nursing profession. The encouragement and appreciation, so dear to those who worked for him, did not fail to elicit good work in his ward and to raise the nursing to a very high pitch of excellence.

Notwithstanding his scientific interest in the case, he never forgot the human interest in the patient, and his behaviour towards his patients continually impressed this on students and nurses alike. In this connection some allusion is necessary to his exertions to improve the maternity department, both for the sake of the better teaching of the students, and for the sake of the women attended in the district.

The high standard of conduct which he conceived as binding on the profession of medicine was a favourite theme of his writings and private conversations, and was exemplified in his own life and work. To quote from a letter of his addressed to the members of the Medical Debating Society at Leeds, "First of all I would have you remember that although it is absurd to ignore altogether the business element in a profession by which most of us have to live, it is fatal to all the higher aspirations of professional life and dwarfing to the moral and intellectual stature to regard medicine as a mere industrial occupation. By all means let your arrangements be made with proper foresight and a due recognition of your own tastes, ambitions, capacities and limitations, but let your professional work be to you something more than a means of earning a living. Keep up your scientific interest in it and do not neglect the human interest. These are the saving clauses in what otherwise would be apt to degenerate into the dull routine of private practice, these are the factors that raise the medical life (to him who extracts from it all its possibilities) out of the category of the sordid and self-seeking into that of the unselfish and ennobling." And again, "You must love your profession with a devotion not wholly sufficient to counterbalance all its difficulties and drawbacks, but intense enough to make you blind to them. Given this devotion and the vocation of the doctor becomes to my mind the finest in the world."

III.

Midwives Question.

It was perhaps in the work connected with the early and difficult efforts towards reform in the training and supervision of an important but neglected class of workers that Dr. Cullingworth's wise counsels

were most often called upon: in the wide-spread help then given by him, his finest characteristics had full play.

From 1900 onwards, he often acted as one of the intermediaries in consultations on intricate questions between the Privy Council, the General Medical Council, and various voluntary associations, besides giving constant attendance at innumerable meetings and very prolonged committees, at which the various Bills were discussed in great detail. The first printed memorandum on which his name appears, after his settling in London as one of those who approved the principle of legislation for midwives, was a paper drawn up for the benefit of members of Parliament by the Midwives Institute before the second reading of Mr. H. Fell Pease's Bill in 1890. The names of Dr. Champneys, Sir John Williams, the late Dr. Graily Hewitt and Sir William Priestley were associated with that of Dr. Cullingworth and seven other distinguished obstetricians. He spoke eloquently, on the same subject, at a meeting called by the Hospitals Association at Soho Square Hospital, October, 1891.

From this time onwards, Dr. Cullingworth was a warm supporter of legislation; he joined early in 1893 the Midwives' Registration Association, a society composed entirely of medical practitioners united to promote the greatly needed reform. Dr. Boxall and Mr. F. R. Humphreys, L.R.C.P., acted as honorary secretaries, and Dr. Watt Black as chairman. There is no doubt that the careful work done by this Association had far-reaching value: its meetings were constant, especially during the period when a draft Bill was drawn up and circulated by the Council; the work continued actively till 1896, and the fact that the executive committee was composed of six general practitioners and six consultants belied the imputation that the latter alone were pressing forward a measure which, useful as it might be to the community generally, would not affect their financial interests as it might be liable to affect the practice of general practitioners.

The Midwives' Bill Committee had been formed in 1890 by the Midwives' Institute, and was enlarged in 1893 in order to include lay representatives and members of Parliament. Dr. Cullingworth as a member worked on the "full" and executive branches of this committee until, in 1902, the Midwives' Act was placed on the statute book: the actual committee meetings represented the least part of the time and thought given by him to the whole question in its varying aspects. Constant changes were required throughout these years in drafting different Bills and in endeavouring to meet as far as was possible the objections raised. The work was indeed laborious and incessant. Many obstetricians and general practitioners gave evidence before the Select Committee of the House of Commons which sat at the two sessions of 1892 and 1893, and finally supported the demand reported in favour of legislation. Dr. Cullingworth did

not give evidence because he said it was a question upon which others could offer experience as well as he could do, and while so much of his time was taken up by a daily and lengthy correspondence on the general question and many attendances at committees, it was unnecessary to ask more of him. Only those who have engaged in a prolonged effort for a legislative reform, which is at once highly controversial and very technical, which, moreover, received at no time the support of the Government, but was entirely in the hands of the different members who were good enough to support the Bill, though unsuccessfully, in the eight sessions between 1890 and 1900 and finally in the many stages of the successful Act of 1902, can appreciate the large amount of aid required from all those connected with the measure. In the various interests of Dr. Cullingworth's full and varied life none drew out more completely his special gifts than did this long effort for legislation for improved training and supervision of midwives. He agreed to help in the undertaking after very careful consideration and with a full knowledge that it was pre-eminently unpopular, and he continued to work for the same object even harder as the years advanced. A duty once undertaken he never deserted till the end of his life, and as various associations began to grow with the same object, he continued to give advice and help as emergencies arose and as difficulties shifted from one point to another.

His sense of humour doubtless helped him to bear with cheerfulness a great deal of private and public discussion which most men would have cut short relentlessly, taking as it did, some very curious forms. Further, his strong sense of justice caused him consistently to say all through the years of work and debate that the educational effect of full and open controversy on a subject which had been for long treated with ridicule and which, even later on, was realised by only a very small number as a question of national importance to human health and life, was valuable both for the medical profession at large and for the general public.

His calm temperate hopefulness, his absolute courage, and his clear outlook were of special value to those who worked with him, while his extreme fairness to all varieties of men and women, his moderation, and instant grasp of the matter in hand, especially at times when divergence of view made a clear judgment difficult to most minds, were qualities which were invaluable as being rarely combined in one character. It was to him that the members of a committee usually looked for the executive ability by which some complicated decision should be embodied in a well-worded and lucid resolution. He thought much, and often spoke little while discussion was going on, in many cases, in order to concentrate his power on the whole question at issue and to judge how far the prevailing opinion could be expressed in clear and concise language. Sometimes he felt very

strongly on some point of principle and then it was refreshing to see his active faculties of opposition at work, but whether in regard to a point connected with the wording of the clause of a Bill or in the larger issues, which constantly appeared, his great aim was to get through business efficiently and with a minimum expenditure of time. His extreme conscientiousness in afterwards considering the work that had been accomplished, seems an increasingly rare quality in busy lives; now the usual tendency is to drop the particular question the moment a committee or interview comes to an end; the contrary was most noticeable in Dr. Cullingworth and arose from his extreme dislike of slipshod methods, from the fact that his standard of work was as high for himself as for others, and that he was peculiarly well fitted to take " long views " of the probable effects of a decision.

On the question of legislation he kept throughout the many years of his arduous efforts certain fixed principles which he had learned from his own practical experience; one of these was that this question could not be regarded as anything but national in its bearing and scope, and that the object of legislation was the better care of the mothers and infants of the poor, for whose sake he worked, and the gradual improvement of the midwives who were and are in charge of over fifty per cent. of the births in England and Wales. When, after the Act became law, Dr. Cullingworth was elected the first representative of the Midwives' Institute on the Central Midwives' Board, it was generally felt that no truer friend of right and justice could have been chosen in the interests of the people whom he protected, of the practising midwife who was anxious to do her duty, or of the profession which he so long and faithfully served on the high plane of loyalty and candour.

In speaking of his death at the Central Midwives' Board, the Chairman, Dr. Champneys, said: " Dr. Cullingworth was one of the original members of the Central Midwives' Board, on which he represented the Incorporated Midwives' Institute. His appointment was gazetted on November 25, 1902, and he served till March 31, 1905, his last appearance being on March 23. The condition of his health prevented him from accepting re-election.

" During the time that he sat upon the Board he was one of the most active and hard working of its members; never sparing himself trouble, nor counting the cost. The work of the first three years was extremely arduous, involving as it did the framing of the rules, and the setting up of a new Act of Parliament (a task which no one can imagine unless he has personally experienced it).

" In addition to this the aims of the Act and the action of the Board were not always understood. This added much to the difficulties of its members, some of whom were more sensitive than others.

" Among the most sensitive was Cullingworth. A difficult

meeting often exhausted him, but difficulties were faced by him and were not evaded; in all his work on the Board he showed an admirable example of public spirit.

"In all bodies there are sure to be differences of opinion; but there was no difference of opinion as regarded the self-sacrificing work of Cullingworth, the opinion of the Board being expressed in the following resolution, which was carried unanimously (March 23, 1905):—

> "That the Board desire to express its deep regret at the "retirement of Dr. Cullingworth, and to record its high "appreciation of his eminent services as a member of the "Board since its foundation."

"Those who have worked with him will not forget him."

Dr. Cullingworth was on the Council of each of the chief voluntary training associations, and his services were specially valuable on behalf of the Association for Promoting the Training and Supply of Midwives.

He presided frequently at meetings of the Council, and during 1906 devoted a very large amount of time and close attention as Chairman of the Advisory Committee which carried out an extensive inquiry into the present and future needs of the country as regards midwives, and drew up an important and extremely interesting report, which was printed in the *Lancet*, and afterwards published separately.

Only those who knew Dr. Cullingworth as friend, worker or adviser can at all realise the immense blank which his loss has caused to those who in any way shared his labours for the public good, or were fortunate enough to benefit by the results of his intellectual force, untiring energy and invaluable advice.

IV.

Literary Work.

In the Obituary of Dr. Cullingworth which appeared in the June number of the *Journal* we pleaded that we could not do more than indicate the manifold character of his work at Manchester. Nor indeed, as our readers must be well aware, could we review in that notice the literary labours of that distinguished gynæcologist, our late lamented editor. We are now in a position to make good that then unavoidable omission. For reasons which we will presently explain such a review, as far as Cullingworth's purely medical and scientific writings are concerned, will mainly consist in a retrospect of his contribution to the archives of a well-known society in London.

From 1867 forwards, until his appointment as Senior Obstetric Physician to St. Thomas's Hospital in 1888, Cullingworth not only contributed many articles to the *Lancet* and *British Medical Journal*, but also undertook, in 1876, the "Provincial Correspondence," from Manchester, in the *Medical Times* and *Gazette* down till about seven years later when that useful serial ceased to appear. About the same time he contributed reviews of medical and scientific works to the *Manchester Guardian*, including a very short criticism, worthy of Charles Lamb on account of its veiled satire, on *Essays on Diet* by Francis William Newman, one of the numerous intellectual lights of the nineteenth century who, unlike Cullingworth, had a weakness for writing about things which they were not in a position to understand.

Before relating his work brought before the Obstetrical Society, we may conveniently say a few words on the separate publications of which Cullingworth was the author. We all know that he was not a book-writer in the strictest sense of the word.

The most characteristic and original of Cullingworth's published works appeared in 1895, a second edition being issued a year later. We refer to the *Clinical Illustrations of the Diseases of the Fallopian Tubes and of Tubal Gestation* concisely explained on the title page as "a series of drawings with descriptive text and histories of the cases." The author availed himself of the services of Mr. Holding and Mr. W. E. Roth, the latter being one of his own pupils. It is doubtful if the Fallopian tube, as it appears in the divers natural ills that it is heir to, has ever been so faithfully represented as in this atlas, and, thanks to Mr. Ewen Stabb, the frontispiece to the second edition is adorned by a couple of drawings of the uterus and its appendages remarkable for the fact, unusual in gynæcological art, that the position of the tubes and their fimbriæ is represented accurately, after the teaching of His, that is to say after nature and not after the fashion of many current drawings where the fimbriæ are made to flutter bravely over the ovaries as though they were pennons, encouraging the student to fancy that they are naturally held up by the intestines or by some other imaginary agency. Cullingworth took great pains, as we happen to know, in order that his atlas might be adorned, or rather enriched, by a good drawing demonstrating the relations of the tube. Precision is impossible, for these relations are naturally not precise, but the author carefully indicates this very fact in his descriptive text and points how the asymmetry of the pairs of appendages are very marked in Mr. Stabb's dissections. With the rest of the work, the hæmatosalpinx, the unruptured tubal sac, and the cancerous tube we are all familiar. The atlas may live long, for good drawings of morbid anatomy can serve for generations whilst microscopic art and science change within a few decades.

Besides his *Nurse's Companion, a Manual of General and Monthly Nursing, Clinical Illustrations* was really Cullingworth's only "book." Other products of his brain and pen were, indeed, published separately in book-form but *Charles White, F.R.S., A Great Provincial Surgeon and Obstetrician of the Eighteenth Century*, an excellent biography, reviewed shortly after its appearance in our columns, was originally an address delivered in 1903 before the Medical Society of Manchester, and *Oliver Wendell Holmes and the Contagiousness of Puerperal Fever* was also an address, and it appeared in the *Journal* for December, 1905. In fact, Cullingworth was not a book-writer and he personally objected to adding another "manual," "system" or "text-book" to the glutted gynæcological book-market. His article on "Pelvic Inflammation" in Allbutt, Playfair and Eden's *System of Gynæcology*, published in 1906, is still current coin. The Bradshaw Lecture for 1902, "On Intraperitoneal Hæmorrhage incident to Ectopic Gestation," appeared in the *Journal* for November, 1902, and our fifth volume includes Cullingworth's Ingleby Lectures delivered in May, 1904, at the University of Birmingham. The subject was "A Plea for Exploration in Suspected Malignant Disease of the Ovary, with Illustrative Cases." Cullingworth also issued in book or pamphlet form an introductory address on "Puerperal Fever, a Preventible Disease," delivered at St. Thomas's Hospital in 1888, and some of his writings on the disease of the uterine appendages.

V.

The Obstetrical Society.

There can be little doubt that the best of Dr. Cullingworth's strictly obstetrical and gynæcological writings are to be found scattered widely over the pages of the many volumes of the *Transactions of the Obstetrical Society of London*.* In books, addresses and lectures writers put forward their general views on the problems associated with medical science and art, but it is rather from their monographs, clinical reports and demonstrations of preparations that we can understand how they came to adopt these views. On that account we deem it just to Cullingworth's memory to devote some pages to a review of his work as recorded in the archives of the Obstetrical Society. In so doing, we believe that we may be saving much interesting and valuable matter from oblivion. We must first point out to our readers that three years before Cullingworth made his first appearance as a reader of a paper at the Obstetrical Society he published, in the *Lancet*, of June 15, 1867, "Notes on a Case of Rupture of the Uterus from Pathological Causes." A multipara, aged 40, died of this complication in her eleventh confinement.

* After coming to London, Dr. Cullingworth contributed several articles to the leading medical papers.

The clinical details describe the symptoms very graphically, as is so often the case in reports written by young observers. He obtained permission for a *post mortem* and found a laceration through a portion of the wall which had undergone degeneration and become very thin through some unascertainable cause not dependent on labour.

Cullingworth's first contribution to the *Transactions of the Obstetrical Society of London* was read at the December meeting of that Society in 1870, nearly thirty-eight years ago, and was entitled "A Case of Pelvic Cellulitis noted with special reference to the Temperature." It was communicated by Dr. Lloyd Roberts, who at the same meeting showed drawings of a case of spinal bifida and another of extroversion of the bladder. Dr. Roberts we are glad to say, yet lives, and contributed to the *British Medical Journal* of May 23rd, a graceful paragraph on Cullingworth as he knew him at Manchester. Cullingworth's first paper was a carefully prepared and well-condensed clinical report drawn up in the days when the relation of pulse to temperature in pelvic disease was not well understood. The author noted that "peritonitis" complicated the case and it is interesting to find that the complication was marked by a relatively high pulse. Thus it reached 120 when the temperature was no higher than 102·4, on a certain day where we find the note "countenance pinched and very pale"; whilst several weeks earlier the pulse was only 116 when the thermometer marked 104·2°. The inflammatory attack, which began on the fifth day after labour, ended after the discharge of a pelvic abscess into the bowel over two months later. Thus the original disease was evidently parametritis, the precise significance in this instance of the symptoms of peritonitis, however, must be lost history, never to be re-written. The truth abides that Cullingworth "spotted" the complication by means of the resources of clinical science at a date when a great obstetrician, who, by the way, read a note on the suturing of the abdominal wound in Cæsarean section on the very same evening, taught that there was no clear distinction between the two forms. Indeed, it was not until several years later, when Matthews Duncan came to London and impressed the words "perimetritis, parametritis," on his pupils, that the distinction was well understood by English teachers. Parametritis remains a unity, but Cullingworth was destined to be one of those observers who have shown that "perimetritis" meant several conditions, including very definite lesions in the Fallopian tubes and ovaries now highly familiar to us.

For nine years the voice of Cullingworth was silent at the meetings of the Obstetrical Society, although he was elected a Fellow in 1875. It was not until October 1879 that he read his second communication, "Fibroma of both ovaries," where the patient died with ascites and free effusion into the left pleura. The tumours, removed

with the uterus after death, were carefully examined by Dreschfeld, who reported them as "fibroma." They were inspected once more, when "not in a satisfactory condition for accurate examination of their more delicate cell-structures," owing to decomposition and the action of alcohol, by Knowsley Thornton and Doran, who were inclined to consider that the new-growth was a mixed sarcoma and reported accordingly. The sequel was instructive. Seventeen years later, in June 1896, when Doran read a communication on "Cases of Fibroma of the Ovary and Ovarian Ligament," based upon labours largely inspired by the study of Cullingworth's report, he admitted that after some original clinical and pathological research he was inclined to believe that Dreschfeld was right, to the great satisfaction of Cullingworth, who observed that it was by such means that knowledge was advanced. Cullingworth, in fact, like Leopold at about the same date, was among the first to turn attention to the fact that a solid connective-tissue tumour of the ovary was not so black as it was then painted. In 1879, Spencer Wells, as we happen to know, removed more than one ovarian tumour, which he felt certain was a "sarcoma." By 1896 it had been long recognized that the cellular elements in the connective tissue which abounds between the bundles of white fibre in a soft fibroma, are not signs of malignancy. This was proved by deep scrutiny into the histology of specimens of these solid tumours, combined with close watching of the after-histories of the patients from whom they were removed.

Once more there was a long pause, of no less than eight years, but in June 1887, Cullingworth reported a "Case of Cæsarean Section," and that communication, headed a long series which appeared without interruption in the volumes of the *Transactions* for thirteen years. Then came the illness, which, though it never quenched his honest zeal, prevented him from attending evening assemblies of any kind. After 1900, Cullingworth contributed to the Society but one paper, though we must note a joint communication prepared with the co-operation of Mr. Clutton. In 1906 he exhibited the Pozzi medal. At the January meeting in 1907 he, for the last time, joined in a discussion, which on that occasion followed the reading of Dr. Fletcher Shaw's monograph on "The Pathology of Chronic Metritis." Thus he was fated to take a part in the last session of the Obstetrical Society, which he was not destined to survive for one whole year.

We must dwell for awhile on Cullingworth's papers and reports during the thirteen years of his greatest activity as a Fellow, from the case of Cæsarean section candidly related, though it ended fatally, to the report of his second case of cancer of the Fallopian tubes read in 1905.

Dr. Cullingworth's most solid piece of Society work was read in the Autumn of 1892, under the presidency of Dr. Watt Black. It

was entitled "The Value of Abdominal Section in Certain Cases of Peritonitis, based on a Personal Experience of Fifty Cases." It forms in itself a small book rather than a "paper" or monograph, extending over one hundred and seventy-five pages, twenty-three being devoted to the tabulation of the fifty cases. Judging the author before the work, the author may be instructively contrasted with his earlier "Case of Cellulitis" above mentioned. The clinical clerk, dresser and registrar, if their attention be turned to it, would learn much to their profit how, in reporting, "well begun is half ended." The good single, analytical report of 1870, showed the fitness of its author for such work, and the fifty reports, analysed in full and then treated synthetically, amply demonstrated that he had not neglected to cultivate that talent and follow up his subject. Judging the work first, we must observe that it was largely the outcome of another communication, read early in the previous year (1891) by Dr. William Duncan at the Medical Society of London, "On Chronic Disease of the Uterine Appendages, with short notes of Thirty Consecutive Cases treated by Abdominal Section." Mr. Knowsley Thornton was, on that occasion, in the chair, and at least four Fellows of the Medical Society who spoke after the reading of Dr. W. Duncan's paper joined in the discussion on Cullingworth's in 1892. Cullingworth's paper, like Duncan's was written to demonstrate that on the whole surgical was preferable to medical treatment. For weeks after the reading of both these communications the paragraphs of the two leading weekly medical journals teemed with leaders, paragraphs and correspondence on the treatment of inflammatory disease of the uterine appendages. Several well-known authorities supported and others disputed Cullingworth's principles and practice with great vigour. On that account the thirty-fourth volume of the *Transactions of the Obstetrical Society of London* remains of much interest as Cullingworth's paper, as the long discussion to which it gave rise is to be found in its pages. The paper is thorough and there is plenty of "talent," as theatrical managers would express it, in the ranks of the disputants. The greatest compliment to the author is the fact that he was reckoned as a man whose teachings should not be left undiscussed. The readers of the JOURNAL will not expect us to trouble them with an analysis of a subject with which they are so familiar. We know more about chronic disease of the appendages than we did in 1892, but we have yet much to learn. It is interesting to note that whilst Cullingworth himself declared in the discussion that he was "not particularly proud" of those cases in his series where he drained suppurating cavities, many of us have found that vaginal incision into a pyosalpinx is good conservative surgery. On the other hand Cullingworth's advocacy of thorough extirpation of appendages practically destroyed by inflammatory changes, has been outstripped by some

authorities who remove the uterus along with the tubes and ovaries. Lastly, there can be no doubt that it is often allowable to save an ovary and tube not hopelessly destroyed by inflammation. They must never be amputated on the ground that the opposite appendages are so affected as clearly to require extirpation. When saved, the less diseased tube and ovary may resume their functions and even allow of impregnation and gestation.*

In concluding these observations on Cullingworth's monograph we may add that it demonstrated very plainly his views on inflammatory diseases of the uterine appendages, and that for years after it was read he exhibited specimens illustrating the pathology of these well-known disorders. He took great pains in causing examples of pyosalpinx and tubo-ovarian abscess to be prepared for demonstration at the Society's meetings and for preservation in the museum of St. Thomas's Hospital. The relation of suppurating tubes to abscess in the ovary is an important subject. Naturally, Cullingworth studied the pathology of tubo-ovarian cyst, and submitted to the Society more than one preparation demonstrating this disputed type of tumour. On the other hand, he investigated suppuration of the ovary, and in a communication which excited great interest at the time, namely the autumn of 1894, he pointed out in the course of an analysis of three cases under his care that the form of pelvic suppuration with which small suppurating cysts of the ovary and ovarian abscess† are usually associated is not pelvic cellulitis, but inflammation of the Fallopian tube, the ovarian suppuration being due to secondary infection. The discussion which followed Cullingworth's relation of the three cases was of very good quality, quite a model to be held up for imitation, for the disputants kept to the point, that is to say, they confined their observations to the question of secondary suppuration. Both Drs. Walter Griffith and Lewers pointed out that in puerperal infection primary abscesses developed in the ovary, the germs reaching it not from the Fallopian tube, but through the stroma, lymphatics, and blood-vessels in the broad ligament. Still, as Dr. Galabin stated very plainly, the usual sequence of events is that the suppurative inflammation is communicated from the tube to the ovary.

Whilst Cullingworth was decidedly one of the earlier advocates of radical surgery as the right treatment of chronic disease of the uterine appendages, he was aware of its dangers. Already, in October 1888, several years before the reading of the standard mono-

* For Cullingworth's later views see his "Introduction to the Discussion on the Surgery of Pelvic Inflammation." *Brit. Med. Journ.*, vol. ii, 1898, p. 461.

† Already in 1877 he had contributed to the *Medical Times and Gazette* a report of "Two Cases of Abscess in Both Ovaries," under his care in St. Mary's Hospital, Manchester.

graph on which we have dwelt, he exhibited a uterus with localized sloughing of the fundus after the amputation of a hydrosalpinx of the right side, the result of gonorrhœal inflammation. The specimen turned attention to a fact already demonstrated some years earlier by Dr. Lewers. A suppurating Fallopian tube may ulcerate and rupture at a portion that is undilated. Cullingworth's specimen was therefore examined once more, and Mr. Shattock found a perforating ulcer in the intra-uterine part of the tubal canal. Since 1888, complete extirpation of the uterus, as well as the appendages, has often been practised, whilst other operators, fearing to leave behind a focus of infection in the uterine part of the tubal canal, cut away a wedge-shaped piece of uterine tissue at the cornu, but do not remove the uterus itself.

Cullingworth was the second British operator to remove a Fallopian tube, the subject of primary cancer, the first being Knowsley Thornton. We must remember that Spencer Wells, in 1879, was the first to remove a true primary tumour of the Fallopian tube, a papilloma, and that three English writers, all living, have closely followed up the subject. Cullingworth's case was reported in full, after due examination of the specimen with Mr. Shattock, and the report was adorned with two fine and now very well-known illustrations, for together with several other drawings originally published with Cullingworth's papers read before the Obstetrical Society, they have been included in his *Clinical Illustrations*.

Cullingworth's second case proved to be the subject of the last paper which he read before the Obstetrical Society. There was bilateral primary cancer assuming the form of malignant papilloma. The report is clear and complete, we are not aware that it was published elsewhere than in the Society's *Transactions*, and only a brief abstract appeared in the pages of the JOURNAL. We trust that it will not be overlooked by British and foreign writers.

Cullingworth was particularly active in bringing forward cases and specimens illustrating the pathology, diagnosis and treatment of ectopic pregnancy. Not only are his remarks on the views of others freely scattered amongst the volumes of the *Transactions*, but his own original communications take up a considerable part of the pages of those volumes which represent the work done in the Society between 1888 and 1898. To begin with, the thirtieth volume includes Cullingworth's case of successful operation eight months after the death of the fœtus. It gave rise to an excellent discussion, which should be read in conjunction with Mr. J. W. Taylor's *Extra-Uterine Pregnancy: A Clinical and Operative Study*, issued some ten years later. That author made clear, though perhaps not so clear as to convince all authorities, many points about the morbid anatomy of the ectopic fœtal sac in the later stages of pregnancy and after

term. In the discussion on Cullingworth's case the speakers showed that our knowledge of the relations of the broad ligament to the sac was still somewhat confused and limited in 1888. Yet we will find that Cullingworth played a part in making the matter clear. In 1890 he exhibited a fully developed fœtus and placenta removed by abdominal section. He plainly stated that the sac which he stitched to the wound was formed by the right broad ligament. The operation was performed four weeks after term. The volume of the *Transactions* for 1892 is enriched by two reports of cases of unruptured tubal sacs associated with apoplexy of the ovum, and with a third case where the tubal sac ruptured, adorned by a fine plate still familiar to those who study special treatises on ectopic pregnancy. In 1893 Cullingworth reported in full the case whence came the specimen exhibited in 1890. On the same evening Dr. John Phillips and Dr. Sinclair Stevenson of Cape Colony also read cases of ectopic gestation, and a very good discussion followed. Turning from the pathology and treatment of this condition after fœtal death, we may look back to 1890 and then we find that Cullingworth contributed a specimen of ruptured tubal gestation sac. There was also a complication bearing on a question not yet settled, namely a hæmatosalpinx on the opposite side. In 1895 Cullingworth demonstrated once more a specimen where the phenomena of hæmorrhage was the main feature. In this instance it was not a hæmatosalpinx, but a firm blood-clot containing a three weeks' embryo. It lay outside the Fallopian tube, clinging to the fimbriæ, and in fact represented complete tubal abortion. Great stress was rightly laid on the fact that profuse intra-peritoneal hæmorrhage had occurred, and that the removal of the sac, surgically a feat of no difficulty, was unavoidably undertaken too late. Tubal abortion, therefore, may cause fatal hæmorrhage, such as more frequently follows rupture of a sac of the same type. Lastly, in 1897, and again a year later, Cullingworth exhibited a preparation, and on the latter occasion read a good paper, demonstrating early ectopic gestation complicated by uterine fibroids. The illustrations of this case have become classical.

Intimately associated with the pathology of tubal gestation is the true nature of hæmatosalpinx and hæmorrhages in the folds of the broad ligament. The thirty-first volume of the *Transactions* contains a report of a hæmatosalpinx, associated with slight continuous hæmorrhage lasting five weeks, not preceded by any menstrual irregularity. In all probability the cause of the bleeding was tubal abortion; unfortunately, the parts were not, it appears, examined microscopically. In the same volume will be found a short communication, which still deserves attentive perusal, on a case of "Hæmatosalpinx and Intra-peritoneal Hæmatocele from Rupture of a Varicose Vein on the Inner Surface of the Right Fallopian Tube." The clot was examined with great care for fœtal products, with

negative results. It was asserted in the discussion that the case showed how intra-peritoneal hæmatocele may occur independently of rupture of an extra-uterine fœtation. Only last spring, Dr. De Rouville, of Montpellier, reported a case* where the hæmatocele was caused by the rupture of a follicle-cyst in a small ovary, the subject of definite morbid changes. The tubes, ovaries and adjacent parts were found free from any microscopic elements representing the products of gestation. In Cullingworth's important report a varicose broad ligament vein had certainly burst into the tubal canal, this fact was demonstrated when the preparation was exhibited. On the other hand, the reader of the communication will not fail to note that Cullingworth admitted a clear history of cessation of menstruation. Still, that fact does not prove that ectopic gestation was the primary cause of the two pathological phenomena so clear in that case. Hamilton Bell and others have demonstrated specimens of hæmatosalpinx from torsion of the dilated tube, a complication unknown when Cullingworth's report was read.† *En médecine, moins qu'ailleurs peut-être, l'absolu n'est pas de mise,* says De Rouville in the monograph to which we have just referred. Those who wish to clear up this great hæmatocele *versus* hæmatosalpinx question, which demands a great deal of clearing up, must not overlook our late Editor's suggestive report.

Dr. Cullingworth contributed to the Society several reports of ovarian tumour* including, beyond the specimen brought forward in 1879, a second and third instance of fibroma of the ovary. For lucidity combined with clinical importance we may signal a joint paper prepared with the co-operation of Mr. H. H. Clutton. Cullingworth removed a pair of ovaries infested with hydatids, taking away several more cysts from the broad ligament and elsewhere. The communication was illustrated by a drawing of the right ovary, now well-known to gynæcologists, to be found in the forty-sixth volume of the *Transactions*. Cullingworth and Mr. Clutton repeatedly operated afterwards, removing hydatid cysts which developed in the abdominal and pelvic cavities, and this treatment extended over

* "Hématocéle rétro-utérine par rupture d'un kyste folliculaire hémorrhagique d'un ovaire microkystique présantant des lésions hémolymphangiomateuses." *Annales de Gynéc. et d'Obstet.*, April 1908, p. 222. I must admit that there is no mention of the catamenia in this report, where the pathological details are related with great minuteness!

† It was read in October 1889. Bland-Sutton reported the first known case of torsion of a hydrosalpinx in 1891. Hamilton Bell's monograph, still the standard work of reference on the subject, appeared in the forty-sixth volume of the *Transactions* (1904), and was based on a case under Cullingworth's care.

* He reported a case of ovarian cyst in a new-born child in the *Obstetrical Journal of Great Britain and Ireland* in 1874.

seven years, until the patient appeared, for the time at least, to be free from hydatid disease.

We hear a great deal now-a-days about necrotic changes in uterine fibroids. In 1894, when the true nature of this complication was not well understood, Cullingworth exhibited a large gangrenous interstitial fibroid, and noted that there had been no possibility of accidental infection, either from the introduction of a sound or from surgical interference of any kind. The patient was 61 years old, and there had been vomiting and debility, but little if any pain. One year later, Cullingworth demonstrated another preparation where the non-septic necrotic change had developed in a small uterine myoma causing great pain. The patient, a nurse, was only twenty-nine years old, the suffering caused by the changes in the tumour had incapacitated her for her duties. A third case of necrotic fibroid, very painful like the second, was reported by Cullingworth in 1897, the patient was an unmarried woman aged 34. Thus in two out of the three cases the subject was young, and in none was it evident why the necrotic change had occurred.

Cullingworth, in 1900, exhibited an incarcerated fibro-myoma. It had developed in the fundus of a retroflexed uterus and, as in two of his cases of necrotic fibroid, the patient was young, indeed in this instance she was only twenty-three.

Another degenerative change, œdema, had taken place in a specimen removed from a single woman aged 41, who had suffered severely from menstrual disturbances. The uterus was exhibited by Cullingworth in January 1893. Four years earlier the patient had submitted herself for eleven weeks to Apostoli's treatment. In reply to a discussion, incompletely reported in the twenty-fifth volume of the *Transactions*, Cullingworth declared that he had not meant to imply that the complication was due to the electrical treatment. Another specimen of fibroid, where œdema was very marked, was exhibited by Cullingworth in 1898. As it had invaded the broad ligament, its removal proved difficult.

Several cases where common conditions seen in uterine fibroid disease were associated with interesting complications were brought before the notice of the Society by Cullingworth in the 'nineties. We must note his short communication, read on New Year's Day, 1896, where a uterus infested with interstitial fibroids in a remarkably symmetrical manner was removed by subtotal hysterectomy from a patient forty-three years of age. Death occurred rather suddenly on the sixth day, no cause could be detected after death, but it was noted that outstanding growths had been enucleated from the broad ligaments and pelvic connective tissue. The process of enucleation involves several dangers. At the same meeting, Cullingworth demonstrated a preparation where a fibro-cystic myoma of very large dimensions sprang from the fundus of a uterus which,

as well as its appendages, showed otherwise no increase in size. This condition, to which Cullingworth and a few other observers were at that time turning the attention of gynæcologists, is now known to be more frequent than it was believed to be twelve years ago. We at present recognize it as a condition which favours torsion of the fibroid, therefore it is interesting to find that in 1895, the year preceding that on which the fibroid which had the uterus itself for a pedicle was exhibited, Cullingworth placed before the Society a fibroid over seven pounds in weight, which sprang from the back of the right broad ligament to which it was connected, independently of the uterus, ovary, ovarian ligament or Fallopian tube, by a short pedicle which had become twisted. This complication caused the patient a violent attack of pain when out shopping, and the fibroid simulated a solid ovarian growth that had undergone axial rotation. The tumour was successfully removed.

The demonstration of fibroids which had delayed the menopause and of growth of fibroids after the menopause is always of interest at a Society meeting. In 1895 Cullingworth reported a case where the patient was 55. There was an interesting family history of delayed menopause. The patient was troubled with menorrhagia associated with a small uterine tumour. Cullingworth performed hysterectomy. The enlarged uterus, not much elongated, measured nearly a foot in circumference, being infiltrated by a fibromyomatous growth extending from the serous coat to the endometrium, and "there was no evidence of any normal uterine tissue." Bland-Sutton and others have since dwelt on certain changes affecting in this manner the entire muscular coat of the uterus.

Two years later, Cullingworth related another case where again the patient was 55 years of age, but in this instance the menopause had been completed two years earlier. She was admitted moribund into hospital for intestinal obstruction, dying a few hours later. A uterine fibroid mass had pressed on the rectum, and the distended bowel above the seat of obstruction had ruptured, causing extravasation of fæcal matter into the peritoneal cavity. This case is, we must say, most unusal, but it should certainly not be overlooked. It illustrates the dangers which may attend any woman who goes about with a large fibroid after the menopause. As for the complication itself Dr. Dakin, in discussing the case, noted that it was extremely rare even when such tumours became impacted in the pelvis, and he related an instance where the bowels acted soon after the impaction had been reduced.

Lastly there remains the specimen of fibroid complicated by ectopic gestation, which we mention above in our summary of Cullingworth's reports of instances of the latter condition.

In 1888, Cullingworth read notes of a case under his care in St. Mary's Hospital, Manchester, two years earlier, where a cyst of

uncertain nature was found connected with the uterus. Some of the Fellows, including a well-known authority, were strongly of opinion that the cyst was hydatid, although according to the post mortem report, no trace of any hydatid tumour was found in the patient's body, and no hydatid elements were detected when the uterus and tumour were examined by a pathological committee appointed by the Society itself. Cullingworth suspended his judgement.

In 1890, Cullingworth read a very complete report on "Four Cases of Vaginal Hysterectomy," followed up three years later by an unusually interesting "Supplementary Note" on the after-histories of the three patients who had survived the operation. The three all died within two and a half years, two succumbing to intestinal obstruction, in one instance due to adhesions about the wound, whilst in the second it was not clear, as no necropsy was allowed, that the obstruction was caused by recurrence. There was a very long and adjourned discussion after the reading of the original report. But the operative procedures in vogue eighteen years ago have been superseded by extremely radical methods, the excellence of which has not yet been determined. Cullingworth, in 1892, exhibited another cancerous uterus which he had removed, where the cervix was the seat of disease, squamous-celled carcinoma, which had, contrary to rule, extended upwards, a pathological condition on which Cullen and other authorities have written since 1892.

Two very complete reports of cases of Cæsarean section were read before the Society by Cullingworth. The first was made public in 1887, the patient was a rachitic dwarf, and died twenty-nine hours after the operation, but the child was saved. The mother was the subject of acute parenchymatous nephritis. The second report was read in March 1892, in this instance mother and child survived the operation. As other cases were brought forward on the same evening, there was much discussion on the merits of Cæsarean section. Cullingworth recorded other cases in his own practice in the *Lancet*. In 1890 Cullingworth exhibited before the Society a uterus removed by Porro's operation. He had intended to save it but there was persistent hæmorrhage from a divided sinus which the sutures passed through the uterine incision failed to check, the uterus was therefore amputated. Both mother and child were saved.

In 1889, Cullingworth read a note on an operation on a case of vesico-uterine fistula illustrated by diagrams, adding that in the United Kingdom , thanks to good midwifery, this distressing form of fistula was fortunately rare, whilst Milton, of Cairo, had operated on fifty cases within three years.

When elected President of the Obstetrical Society of London for 1897–8, Cullingworth chose for the subject of his Inaugural Address "The Undiminished Mortality from Puerperal Fever in England and Wales," illustrated by some instructive charts and statistics.

Some obstetrician still spared to us might profitably speak on the same subject. A revised map, showing the relative incidence of cases of puerperal fever in London parishes in 1907 would be highly instructive for purposes of comparison. In his two Annual Addresses, 1898 and 1899, Cullingworth, after doing his duty by going over an unavoidably tedious review of the work of the two sessions, discharged very satisfactorily another duty expected of Presidents of the Society, the decent custom of reading an obituary notice of Fellows deceased during the past year. We trust that the re-formed societies in Hanover Square will not discontinue this custom, for surely a part of one meeting in each year can be spared for so graceful a purpose. Cullingworth figuratively tolled the bell for two great names, in 1898, namely Spencer Wells and Braxton Hicks. To these two obituaries as read, he added to the published report a full list of the writings of those great authorities. A year later, Cullingworth read an obituary notice of Charles West.

Tout lasse, tout casse, tout passe. The Obstetrical Society has coalesced with the Gynæcological Society, and they together make up the Section of Obstetrics and Gynæcology of the Royal Society of Medicine. Cullingworth was made a member of the Library Committee of the Society, representing the two specialities. Unfortunately that amiable and talented obstetrician and gynæcologist did not live to take a part in the work of the new society, a part which, without doubt, he would have played very well indeed. The Society will lose the benefit of his experience and his evergreen enthusiasm.

REVIEW OF CURRENT LITERATURE.

Analgesia for Minor Operations.

SINCLAIR, Manchester (*Brit. Med. Journ*, 1908, vol. i, p. 991) has recently advocated the use of a combination of morphia, alcohol and cocaine as an analgesic in minor gynæcological operations and such manipulations as the removal of the placenta after abortion. Two ounces of alcohol masked by extract of liquorice are given two hours before the operation and 0·25 or 0·5 grain of morphia, 20 minutes before it. The vagina is swabbed with a 10 per cent solution of cocaine. Any minor operation can then be done, and should a general anæsthetic be necessary the amount required is greatly diminished.

Atmokausis, a Fatal Case.

CRAMER, Bonn (*Monats. f. Geburts. u. Gynäkol.*, Bd. xxvii, Ht. 3), has now abandoned the practice of vaporization, with which he had obtained good results in many cases, as in spite of every technical precaution, it recently caused the death of one patient, owing to severe septic infection of the cauterized tissue. (v. *B.M.J.*, Ep. 305, 1908, vi. 6.)

Prolapse of the Female Urethra.

G. F. BARBOUR SIMPSON (*Surgery, Gynæcology and Obstetrics*, May 1908) reports: A multipara, aged 56, complained of hæmorrhage and pain on micturition. The attacks of hæmorrhage were periodical and varied in severity. She had always suffered from severe constipation. She was in a feeble state of health owing to three attacks of nephritis during the previous five years. A red mass, about the size of a large cherry, protruded at the meatus; it consisted of a ring of congested and very sensitive urethral mucous membrane. An attempt, under anæsthesia, to reduce it, failed. The mass was then removed with scissors, and the edges of mucous membrane were united, round a catheter. Two days later she was able to micturate and in ten days healing was complete and micturition was painless. Microscopically the mass consisted of angiomatous nodules bound together by connective-tissue, which was mostly loose and cellular but in places dense and fibrous. The nodules were enclosed within thick-walled sinuses from the endothelial lining of which they took origin. The epithelial covering was incomplete but, where best marked, consisted of several layers of transitional cells. Simpson considers that constant straining at stool, was the exciting, and general debility the predisposing, cause. He cites vascular caruncle and vesical tenesmus due to calculus or cystitis as other recognized causes. Symptoms arising from this condition vary greatly in degree; in some patients no discomfort is caused. In slight cases reduction followed by the use of astringent injections may afford sufficient relief. MILES H. PHILLIPS.

Epispadias in the Female and its Surgical Treatment.

G. NOVÉ-JOSSERAND and G. COTTE (*Revue de Gynécologie et de Chirurgie Abdominale*, November–December 1907) says epispadias in the female is a malformation so rare that though medical literature contains accounts of fairly typical examples its existence has been denied.

The author's case was that of a girl 5½ years of age, who had suffered from incontinence of urine since her birth. Examination revealed the following condition:

Below the pubes the anterior commissure of the vulva was absent, and in its place there was an infundibulum from which flowed a constant stream of urine. The clitoris was divided, the two halves being situated at the anterior extremities of the labia minora, which were widely separated. The labia majora extended upwards and outwards and ended in the integuments of the mons veneris. The anterior wall of the urethra was absent. The symphysis pubis appeared normal, but a radiogram showed considerable separation of the rami of the pubes. The bladder was small but otherwise normal. There were two openings in the hymen, each communicating with a separate vagina.

Operation. A strip of skin above the urethra was dissected up and the raw surfaces exposed were brought together with sutures. The sides of the clitoris and the extremities of the labia minora were pared and stitched together. A new urethra was thus formed with a meatus situated below the clitoris. The incontinence of urine persisted, but the urine did not flow away continually drop by drop as it had done previously.

Cases of this kind may be divided into two groups :—(1) Those in which a large opening exists in the anterior wall of the bladder and the abdominal wall in relation to it. (2) Those in which the superior wall of the urethra is wanting, either in part or the whole of its extent. The neck of the bladder may also be involved. There may or may not be a separation of the pubes in the median line. Several cases of this kind which were operated upon are described in full detail.

Pathogenesis. The examination of a longitudinal section of a four weeks' embryo shows that the cloaca is closed by a membrane extending from the caudal extremity of the embryo to the allantois; this is the cloacal membrane. The termination of the intestine and the allantois form a single cavity separated from the exterior by a mesodermic layer covered internally by entoderm and externally by ectoderm. The mesoderm disappears, the ectodermic and entodermic cells proliferate actively, giving rise to the cloacal button of Journaux. At the end of the first month, when the cloaca is still closed, the genital tubercle appears at its most anterior part, and pushes before it, and becomes capped by, the urogenital membrane; its superior surface is smooth and round, its inferior surface on the contrary is grooved by the urogenital gutter and covered by the anterior part of the urogenital lamina.

About the end of the 2nd month the dehiscence of the urogenital lamina occurs, forming the urogenital fissure. In the male, the part of the urethra in front of the *veru montanum* is formed by the closure of the urogenital gutter. In the female, the development of the urethra is less complex, it is formed from the allantois. In consequence of the non-coalescence of the genital folds the urogenital fissure will form the urethro-vaginal vestibule into which the urethra and vagina will open. The occurrence of epispadias is explained as follows: nominally the structures derived from the button of Journaux touch but do not cross the genital bud; if, however, they cross over the urethra will be displaced; when dehiscence occurs the superior wall of the urethra will be absent. In subsymphysary epispadias there is hypertrophy of the most superficial epithelial mass, as well as displacement of the urethra, and the opening will be too large and the upper wall of the anterior part of the urethra will be absent. The clitoris will be divided. Finally, there may be considerable hypertrophy of the anal membrane, which may even reach the bladder, and then the superior wall of the urethra will be absent in its whole extent, giving rise to retrosymphysary epispadias.

Symptoms. In almost all cases of epispadias there has been absolute incontinence of urine; in a few exceptional cases of the first degree there was no incontinence.

Physical signs. Three degrees of epispadias are described :—(1) Clitoridian epispadias. This consists of a displacement of the urethra to a position above the clitoris. The anterior part of the upper wall of the urethra is absent, its inferior

wall lies just above the clitoris and from this point the skin forms an inclined plane to the mons veneris. (2) Subsymphysary epispadias. In this form the malformation is much more extensive than in epispadias of the first degree. The clitoris is always divided and there is a gutter open above corresponding to the subsymphysary portion of the urethra of which the superior wall is absent. This gutter, at the inferior border of the symphysis becomes continuous with the retrosymphysary portion of the urethra. The division of the clitoris necessarily causes the absence of the anterior commissure of the vulva. (3) In retrosymphysary epispadias the whole of the superior wall of the urethra is absent. The sphincter of the bladder can be felt at the bottom of the urethral furrow, but does not prevent the involuntary escape of urine.

Treatment. Surgical measures have been adopted for the relief of the incontinence of urine and for the reconstruction of the anterior commissure, the clitoris and the vulva. The methods employed for the relief of the incontinence may be grouped under three heads; narrowing the urethra, lengthening it, and, by combining the two methods, diminishing its calibre and increasing its length. Reconstruction of the vulva is easy and the results are generally good. Even when incontinence of urine is not present, the normal appearance of the vulva should be restored, for such malformations, if left untreated, are apt to have a regrettable influence on the character. Epispadias of the first degree in which there is merely displacement of the urethra above the clitoris should not be interfered with. A. Lionel Smith.

The Ganglionic Nervous System of the Human Uterus.

Keiffer (*Bull. Soc. d'Obstét.*, Paris, 1908, No. 2 and 3) gives a record of his researches into the distribution of the nerve cells and ganglia in the uterus. In reviewing the work done by other observers he finds that the chief source of controversy lies in the question of the presence of intra-uterine ganglia and of isolated nerve cells in the uterine wall. After working upon uteri of the cat, rat and other animals he bases his conclusions on the examination of the human uterus at the second month after birth. The most satisfactory method of staining the nerve tissue, is that of Ramon y Cajal, and pieces of tissue can be used, not only in the fresh state, but even after fixation for seven or eight years in formol and in alcohol; the most satisfactory sections are got by demonstrating the presence of the blood-vessels at the same time by previous injection of the tissue with gelatine carmine. Sections 1 cm. square and 3 to 6 mm. in thickness are placed in a watery solution of silver nitrate (1·5 per cent.) in a stove at a temperature of 37° for five days; they are then taken out, washed rapidly in distilled water and replaced in the stove for twenty-four hours in a bath of hydrokinone 1 per cent. The sections are then transferred to the graduated alcohols, then to xylol and paraffin, and cut into finer serial sections. The parts of the uterus examined comprised a portion of the broad ligament, the vaginal wall with cervix on the left side, the lower uterine segment with the tissue immediately above it. The sections are cut transversely, the older nerve elements appearing almost black in colour, and the younger pale owing to their not so readily staining with the silver solutions.

The *arrangement of the nerves.* In the broad ligament and in the vaginal connective-tissue in the second month after birth, a number of sympathetic ganglia, about six or nine in number, of various forms, most being multilobular, are seen lying in the course of the large nerves coming from the hypogastric plexus and entering the uterine and vaginal walls. The nerves which go to form these ganglia are directed as a rule from above downwards and from without inwards; the nerves leaving them describe curves in opposite directions and are almost all parallel to the blood-vessels. Before entering the utero-vaginal wall a great number of nerves form ganglia cylindrical or fusiform in outline. These are embedded in the tissues

and closely surrounded by blood-vessels so that it is almost impossible to trace the limiting zone between this wall and the broad ligament. In the walls of the uterus and vagina are seen nerves and nerve ganglia, the latter in various stages of development, each with its afferent and efferent nerve. These ganglia are cylindrical, spherical or fusiform in shape, and are found in groups, or as local thickenings of the nerves in the vicinity of important blood-vessels. The ganglia are situated in the outer half of the vaginal wall and lower uterine segment, but are not found in the inner half or in the mucous membrane Although the cervical ganglion of Frankenhäuser which lies in the isthmus of the uterus is not seen in the sections, its anastomatic relationship with these smaller sympathetic ganglia is seen in the posterior and lateral zones of the broad ligament at the level of the isthmus. These areas are rich in ganglia, whereas none are found in the retrovulvar zone. A number of ganglia are found in the median line, in the peritoneum and connective tissue between the bladder and uterus, and also behind, in the tissue between the uterus and rectum below the cervical ganglion.

The *structure* of the ganglia varies with the stage of development, those in the broad ligament being further developed than those in the uterine wall. In one section, a ganglion is seen with definite outlines near and almost transected by an artery in the vaginal wall; it is composed of masses of small cells—the ganglionic neuroglia—and axis cylinders, filaments spreading out, one to the periphery of the organ and one to the interior forming the afferent and efferent filaments. Larger cells—the ganglionic nerve cells—are seen among the small round cells whose cytoplasm stains deeply and whose nuclei are rounded in outline; these are the early multipolar cells. A veritable glomerulus of capillaries forming a network with the nerve filaments surrounds each ganglion in the injected specimens, and, in places, a nutrient vessel is seen in the axis of the nerves forming the ganglion. In later stages of development a definite capsule of connective-tissue can be seen surrounding the ganglion; under this capsule the multipolar nerve cells are found with their branches running inwards and forming a network; later on these cells become more centrally placed and the different types of nerve cells are seen having one, two or several poles.

In conclusion, Keiffer states that true sympathetic ganglia are to be found in the walls of the uterus and vagina similar to the other ganglia of the sympathetic chain; they are developed in the course of the nerves only to a certain depth in the uterine and vaginal walls. At the second month no fine anatomical nerves are seen such as are to be found in the adult. Numerous illustrations are given showing the arrangement and distribution of the ganglia. A. Louise McIlroy.

Menstrual Arthritis.

T. D. Morgan (*Amer. Journ. Obstet.*, vol. lvi, p. 207) says he has recently met with four cases of arthritis which seemed to be strongly associated with, or dependent upon, the menstrual function. Two of the cases might be referred to as precocious menstruation, as one began menstruating at eleven years and the other at twelve. The two other cases were aged eighteen and thirty-two. The two latter has suffered from rheumatism, and had noticed that the attacks were more severe when the menstrual flow was scanty or tardy. The two of the precocious type had a strong family history of rheumatism on the father's side. The history of one case is given with some detail. A child of twelve, who had always been healthy, was taken with headache, fever, pain and swelling in the knees, wrists and shoulders. She was put to bed and treated with salicylates. The next evening a slight discharge from the vagina was noticed, and the patient was decidedly better. The discharge increased, and she rapidly got well, but for the next five months the pains in the joints returned at the menstrual period and, even now, when the period is scanty, there is a return of the pain and swelling of the joints. C. Nepean Longridge.

The Treatment of Chronic Gonorrhœal Endometritis.

KOLISCHER (*Surgery, Gynæcology and Obstetrics*, May, 1908) describes a method of treatment by which he cured the majority of 43 cases. The vulva and vagina are cleansed, the portio exposed by a speculum and the cervical canal and uterine cavity are freed from pus and mucus by a swab soaked in a concentrated solution of sodium bicarbonate. The cervix, if necessary, is steadied by a tenaculum. A swab soaked in a 3 per cent. solution of albargin is then left in the uterine cavity for five minutes. It is removed and an ichthyol and glycerine tampon is introduced into the vagina. This treatment is continued daily until the discharge ceases and until repeated examinations of the mucus from the uterus fail to show either pus cells or gonococci. In certain torpid cases the occasional application of 40 per cent. formalin solution is advised. MILES H. PHILLIPS.

Perforation of the Uterus.

ALBRECHT (*Münchener m. Wochenschr.*, 1908, No. 15, S. 826), at the Munich Gynæcological Society, recently protested against perforation of the uterus being considered under any circumstances a harmless accident. As a penetrating abdominal wound it was always attended by the possibility of serious complication. He related two cases admitted after the accident into Amann's Klinik :—

(1) The first was a perforation with the curette in an attempt to remove remnants of the placenta three weeks after delivery, and the bowel was injured also. It was followed by extensive suppuration in the left hypogastrium and an intestinal fistula; five operations (extra-peritoneal opening of abscesses twice, one abscess opened by colpotomy, later a search for the intestinal fistula and the making of an artificial anus, and, finally, closing that anus) could not avert the unfortunate termination, after a year and a half, of a chronic pyæmia with pyelonephritis and amyloid degeneration of the abdominal viscera.

(2) The second case was one of digital perforation in the evacuation of an abortion, which was followed by symptoms of intestinal stenosis increasing in severity and after two months causing complete occlusion. On laparotomy the omentum was found twisted up into a tense cord of a finger's thickness, which was adherent to a depression in the posterior wall of the uterus and to the promontory, and had imprisoned the lower part of the ileum and the end of a stretched-out appendix. The woman made an uninterrupted recovery after this bridle had been loosened and the appendix removed.

Simple Hysterectomy in Simple Cases.

A. H. FERGUSON (*Surgery, Gynæcology and Obstetrics*, May, 1908) advocates the following procedure as fulfilling three important principles: (1) minimum number of sutures; (2) minimum amount of raw surface; (3) prevention of prolapse of the cervix and vaginal vault. The broad ligaments, including the uterine arteries if possible, are first crushed, close to the uterus, by powerful clamps. They are then ligatured with No. 2 chromicised catgut placed in the track of the clamp; to prevent slipping the round ligaments are also included. The ligatures are left long and threaded at each end into a needle. Separate ligatures may be applied to the cut vessels as an additional precaution. The broad ligaments are then divided and the uterus is amputated, long, anterior and posterior, cervical flaps being formed. The ends of the broad ligament sutures are passed through the bases of the cervical flaps and tied, and the stumps are thus fixed to the cervix. Finally, the middle portions of the cervical flaps are united over the broad ligament stumps. Ferguson has performed this operation on 52 occasions without a death or complication. The paper is illustrated by three good plates. MILES H. PHILLIPS.

A Simplified Technique for Supravaginal Hysterectomy.

Willard Bartlett (*Surgery, Gynæcology and Obstetrics*, May, 1908) describes a method which enables him to perform the operation in fifteen to twenty minutes. The round ligaments are clamped and divided near their origin. The bladder is stripped off the cervix. The broad ligaments are clamped and cut close to the uterus, and the uterine arteries are ligatured and divided. The cervix is then cut across by two incisions, leaving a transverse gutter bounded by anterior and posterior flaps. The round and broad ligaments of one side are then placed in the corresponding half of the gutter and there fixed by a suture which passes through the posterior cervical flap, the lower edge of the pedicle, the anterior flap, and finally the upper edge of the pedicle. The other side is treated in the same way. One suture suffices to fix the bladder peritoneal flap over the stump. Only one needle and suture is used in the procedure. Miles H. Phillips.

The Prophylaxis of Embolism after Gynæcological Operations.

A. Sippel, Frankfort (*Zentralb. f. Gyn.*, 1908, No. 15), while recommending Zurhelle's work on the same subject in the highest terms, differs in pleading that the abdominal incision should not be made too short. The less the edges of the wound are torn or crushed, and the better the field of operation is open to inspection, the more accurately can the operation be performed. Sippel also repeats his recommendation that, to prevent thrombosis and embolism, the patient should be kept in the dependent position adopted for the operation while she is being transferred to bed and for some days afterwards in order to secure a flow of blood out of the pelvic veins towards the heart by the elevation of the former above the latter. Sippel discusses other details of preparatory and post-operative treatment.

Fibromyomata of the Round Ligament; three cases.

Barton Cooke Hirst and Norman L. Knipe (*Surgery, Gynæcology and Obstetrics*, Vol. v).—The authors state that there are only 41 similar tumours on record and that no one has ever reported as many as three cases. All their cases were associated with child-bearing. The first was operated on between two pregnancies, the second two weeks after delivery and, in the third, labour was induced and the tumour removed at the same time. The patients all made good recoveries.

The rate of growth of these tumours is generally very slow, but when pregnancy supervenes they very rapidly increase in size. In two of the cases the growth was first noticed as a small lump one month before conception, while at term the tumour was the size of a cocoanut. Degeneration is liable to occur in them, especially of a sarcomatous nature. Three out of the 41 ended in this way. Robert Jardine.

Myoma of the Rectum.

P. Becker (*Archiv für Gynäkol.*, B. lxxxv, p. 427) records a case of this rare tumour. The patient, a married, multiparous woman, aged 44, had been complaining of increasing constipation for two years. The diagnosis was very difficult. The tumour had displaced the whole of the posterior wall of the vagina forwards, and could be felt rising to the height of the brim of the pelvis. The mucous membrane of the vagina was normal and movable, whereas that of the rectum was adherent. The rectum was narrowed to a slit and pushed to the left by the enormous swelling.

An examination under an anæsthetic showed that the tumour was not connected with the uterus.

The tumour was removed from below and was adherent to the rectum which had to be incised for the length of 8 cm. The slit was sutured and healed up well. The sphincter was intact.

The tumour, the size of two fists, had a nodular surface and in shape resembled the cerebellum. The microscopic examination showed the typical structure of a fibromyoma. H. T. Hicks.

Retroperitoneal Lipomata.

R. Proust and A. Trèves (*Rev. Gyn. Chir. Abd.*, 1908, Tome xii, pp. 93—160), base an important monograph on one case operated upon in Professor Pozzi's wards at the Broca Hospital, and 88 others collected from literature. Reviewing previous publications on the subject they accept the title retroperitoneal lipomata from Terrier and Guillemain, thus excluding all tumours of the anterior abdominal wall.

Adami, who in 1896 collected 42 observations, classified these retroperitoneal tumours in three groups: (1) those originating from the perirenal fat; (2) those of doubtful origin; and (3) those developing in the mesentery.

The grouping in this essay is broadly the same.

Retroperitoneal lipomata:

(1) Parietal: (*a*) simple; (*b*) perirenal.

(2) Mesenteric.

The tumours arising in the perirenal fat are the most common (57 per cent.), but are only one form of retroperitoneal lipomata between which and the parietal and mesenteric forms, intermediary growths are met with almost imperceptible differences.

In the 89 cases here considered 14 were simple parietal, 38 perirenal, and 37 mesenteric. Of the patients 61 or 70 per cent. were women. The age of incidence varied from one year to 70, but in the larger number of patients was from 30 to 50 years; these tumours, however, grow slowly and their beginning was unknown in 28, and only noted in 19. The weight of the tumours was commonly as much as 6 kilogrammes, 10 kilogrammes was not unusual, and higher weights up to 63 pounds were met with. As a rule these growths were solitary, but in 10 instances they were multiple, or bilateral with a transverse uniting portion. In all the fatty matter predominated: in some it was associated with myxoma, fibroma, or sarcoma, in others there had been calcification or softening from thrombosis. In the 60 precisely described, there were: 17 lipomata, 14 fibro-lipomata, 11 myxo-lipomata, 4 fibro-myxo-lipomata, 3 lipo-myxo-sarcomata, 1 lipo-myxo-chondroma, 2 lipo-fibro-myxo-sarcomata, 4 tumours containing multiform new growths, and 4 lipomata partly calcified.

Symptoms. These tumours are characterized by their size, their indolence and their progressive enlargement. They cause discomfort rather than pain, but mechanically, lead to loss of flesh, cachexia and feverish attacks; to œdema of the legs and of the abdominal wall; to dilatation of the venous plexuses and ascites; to dyspnœa; to dyspepsia, constipation or occlusion. (The function of the kidneys seems to be seldom affected even by perirenal tumours.) On palpation their consistence is sometimes semi-fluctuating, but generally elastic and often firm; they are usually immobile and absolutely dull on percussion; occasionally in the case of perirenal growths, ballottement can be obtained in the lumbar fossa. As a rule, they are independent of the internal genitalia.

Diagnosis. An exact diagnosis before operation is very rare, and occurred in only one of the 89 cases (lipoma retroperitoneal, by Terrier); a retroperitoneal tumour was diagnosed in 9. In women the growth is often taken to be an ovarian cyst, and the differentiation from an hydatid cyst will sometimes require an exploratory puncture which, however, is not recommended except in tumours limited to the iliac fossa. When the tumours are large enough to displace the intestines, they can generally be

identified as retroperitoneal, but it is only the progressive enlargement and elastic semi-fluctuating consistence that betrays a lipoma.

The *prognosis* of these tumours is relatively benign, as malignant degeneration is very rare, but mechanically they lead to death. Moreover, when their exeresis has been incomplete, the fragments left behind may cause pseudo-recurrence.

The *treatment* is extirpation, but as Terrier and Guillemain pointed out, and Doran and Herbert Spencer have insisted upon, the difficulties of operating in these cases are extreme. In advanced cases it is well to begin by an exploratory laparotomy, but even that has proved fatal in 3 out of 8 cases. The removal of the tumour may be rendered laborious by adhesions: (1) to the anterior abdominal wall; (2) to the pelvic organs especially to the right adnexa or bladder; (3) to the intestines; or (4) to the mesenteric vessels. When the mesentery is invaded, removal of the tumour may deprive a length of the intestine of its nutrient vessels and result in gangrene; indeed the surgeon must recognize before operating that extensive resections may be necessary and should be carried out at once. The tendency of these tumours to envelope or adhere intimately to vessels, nerves, kidneys and ureters, must not be overlooked. The kidney is often injured in removing perirenal growths. Nephrectomy, intentional or otherwise, attended the removal of the tumours in 17 of the 89 cases, but only 3 of these were fatal; one should not therefore sacrifice anything in the perfection of the exeresis for the sake of preserving a kidney. The possibility of a tumour being adherent to the vena cava or aorta must be borne in mind.

Tumours limited to the iliac fossa may, as in the case operated on by Proust, be removed extraperitoneally. In all other cases median laparotomy is the best way. The site of the incision through the peritoneum depends on the relation of the tumour to the colon. In perirenal tumours it should be outside the colon, and the operation should be continued as a transperitoneal nephrectomy. The approach to mesenteric tumours is generally through one fold of the spread out peritoneum, and can generally be made at some distance from the intestine; not less than 5 cm. or gangrene will occur. Possible adhesions to large vessels must be continually remembered, the tumour should not be turned over until its posterior surface is quite free—there is no proper pedicle, only some vascular adhesions to be ligated successively. Morcellement may be advantageously employed for large tumours. Free drainage is essential, and the retroperitoneal cavity must be plugged.

The importance of the subject will admit of our giving the authors' own summary of their conclusions:—

In the term retroperitoneal lipomata are included tumours variable in structure, but with fatty matter predominating; they are all developed behind the peritoneal cavity, in some cases at the expense of debris of the Wolffian bodies, but most often from some unknown origin. These tumours may be perirenal lipomata, enveloping the kidney; mesenteric lipomata, unfolding the mesentery; or simple parietal lipomata, based upon the iliac fossa alone. They may attain considerable dimensions, especially in the two former cases, and are among the most voluminous tumours found anywhere. They are in themselves innocent growths, but are dangerous owing to their size. They so completely surround the viscera, or are so intimately adherent to them, that their extirpation is dangerous (mortality 30 per cent.), and frequently involves the resection of organs themselves healthy but enveloped in their mass.

Subperitoneal Cyst (Wolffian Duct).

Zacharias (*Münchener m. Wchnschr.*, 1908, No. 14, S. 766), at the Franconian Obstetrical Society, reported the following case: A woman, aged 52, who had always suffered from menorrhagia, during the last three months had had irregular hæmorrhage, which at times was very profuse. Examination proved that the uterus was much enlarged, elevated and anteposed, and that at the posterior wall of the cervix

there was a tumour solid to the touch, twice as large as a fist, which filled the pouch of Douglas and the right vaginal vault. This tumour was taken to be a myoma, and operation showed that the uterus was myomatous, but the apparently solid tumour turned out to be a tensely distended cyst lying below the peritoneum in the connective tissue between the rectum and vagina, and in the right parametrium and paracolpium also, but unconnected with the uterus or adnexa. Both the ovaries were small and unaltered. The cyst measured 11 : 9·5 : 8 cm., consisted of a single chamber, and contained serous fluid; its very thin wall showed in some places bar-like thickenings of fibrous tissue on its inner surface. Under the microscope, in a section of one of these places, a connective tissue and a muscular wall were seen with cylindrical epithelium, generally in a single layer, lining the cavity, and in some places flattened from the pressure of the contents; in other places there were two layers and in a few tufty protrusions. Numerous cavities could be seen in the wall, filled with coagulated secretion and with a thin, cellular lining. It seemed most probable that the origin of the cyst, of which Zacharias showed macroscopic and microscopic preparations, was from remains of the Wolffian duct.

Adhesions of the Appendix to the Uterus.

D. T. Quigley (*Journ. Amer. Med. Assoc.*, vol. l, 1908, p. 1791) says a patient, aged 20, had suffered for about a year from symptoms of appendicitis, which had latterly become more acute. On opening the abdomen an ovarian cyst the size of an orange was found on the left side and, on the right, the appendix was found adherent to the back of the uterus. The right tube was locked round the tip of the appendix which was bulbous and contained pus. C. Nepean Longridge.

Malignant Pigmented Tumours of the Vulva.

H. Hinselmann, Kiel (*Zeitschr. f. Geburts. u. Gynäkol.*, Bd. lxii, Ht. 1) describes a new case of melanotic tumour of the vulva, and discusses these tumours, both from a clinical and from a pathological standpoint. He gives a detailed list of all the recorded cases. His patient was a septemdecipara, 56 years of age. The tumour was seated in the right labium minus; the inguinal glands were not affected. An operation was performed for removal of the tumour, but death occurred six months afterwards from metastases in the lungs. The number of cases of this nature recorded is now 46. Hinselmann reviews them clinically according to the age-incidence, the primary seat, the state of the inguinal glands, the duration of the disease before operation, the date of recurrence after operation, the percentage of "cures," the mortality, and the differential diagnosis.

In the pathological part of his paper he discusses the mode of origin of these tumours. His own case was subjected to a detailed microscopical examination, and he considers it to be a spindle-celled melanotic sarcoma arising from the stratum malpighii of the skin. He considers that they arise only seldom from pigmented nævi, and that the reason for sarcomata of the vulva being so often pigmented, is to be sought in the fact that the skin of the vulva is naturally so rich in pigment.

[*Note.*—There is still another case not mentioned here, reported by the abstractor, in Proc. Royal Society Med., Obstet. Section, vol. i, No. 5.]

Eardley Holland.

Primary Carcinoma of the Tube.

Kehrer, Heidelberg (*Monats. f. Geb. u. Gyn.*, Bd. xvii, Ht. 3), finds that, as there is no distinction to be drawn, as regards the site, form, size, consistence and adhesions, between tubal carcinoma and pyosalpinx, the differential diagnosis of the two diseases is very difficult. Rapid growth and increasing immobility are evidence in favour of carcinoma. A further characteristic of cancer is the hæmorrhagic

exudate to be obtained by puncture from the vagina, in which the presence of carcinomatous elements must always be sought for. As carcinoma of the tube is remarkable for its extreme malignity it demands early radical operation in the way of Freund's extended operation for uterine carcinoma. Inflammatory changes may precede the development of carcinoma, or may be elicited by it. Alveolar carcinoma is a later stage of what initially was only papillary carcinoma.

Carcinomatous Infection of the Uterus through the Fallopian Tube.

Sitzenfrey (*Gynækologische Rundschau*, 1908, Ht. 11).—Reichel was the first to draw attention to the co-existence of carcinoma of the uterine body and ovary, and he believed that the ovary was the primary seat of the cancer in several cases he reported, and that the infection of the uterine cavity occurred by the passage of carcinomatous cells along the tube like fertilized ova. v. Franqué has reported a case of carcinoma of both Fallopian tubes and of the uterine body in which the uterine affection was probably secondary to the tubal affection.

Sitzenfrey here reports a case of far-advanced carcinoma of the uterine body, originally an adenocarcinoma but taking on a decidedly marked polypoid form, and clinically giving rise to severe uterine colic. The infection had spread along the tubes, the carcinomatous particles having been squeezed along by the uterine contractions. The structure of the tubal carcinoma was an adenocarcinoma, which suggests that it was probably of uterine origin. Although the tube was distended by the growth, there was no microscopic evidence of implantation on the mucous membrane.

Sitzenfrey believes that in polypoid carcinoma of the uterine body, colicky contractions of the uterus drive the growth into the tube and even as far as the peritoneal cavity. E. Scott Carmichael.

Carcinoma of the Corpus Uteri in a Young Person.

Engelhorn, Erlangen (*Münchener m. Wchnschr.*, 1908, No. 14, S. 766), exhibited at the Franconian Obstetrical Society a uterus removed by Wertheim's method, for carcinoma of the corpus. The patient, a nullipara only 23 years of age, had come to the klinik on account of a profuse menorrhagia which had persisted for 14 days. After examination a diagnosis of endometritis was made, and the uterus was curetted and a quantity of luxuriant tissue brought away which microscopic examination proved to be adenocarcinoma. Wertheim's operation was performed at once, and the patient made a good recovery.

Very few instances of corpus carcinoma at such an early age have been recorded. The case shows the absolute necessity of the microscopical examination of the debris of every curettement for hæmorrhage, however young the patient may be.

The Relation of Ovarian Cysts to Abdominal and Pelvic Pain.

John A. Sampson (*Surgery, Gynæcology and Obstetrics*, vol. v) gives the results of observations made when he was resident gynæcologist in the Johns Hopkins Hospital under Dr. Kelly, in referencee to ten large ovarian tumours operated upon under infiltration anæsthesia.

In eight cases, the sensibility of the wall of the cyst was tested by pinching, clamping and cutting, and there was no pain, but traction on the pedicles of these cysts caused pain, increasing in severity as the traction was increased. The pain, at first, was usually referred to the side of the abdomen near the pelvic brim, but, as the traction was increased, it became more widely felt over the side of the abdomen or in the back. In two cases when the pain was severe there was nausea also. Relief was felt as soon as the traction ceased. Clamping or pinching the pedicle, without making any traction, seemed to cause pain in some cases while, in

others, the pedicle seemed to be relatively insensitive if the clamping, pinching or cutting was not accompanied by traction.

Lennander, who was the first to make observations on the normal ovary, tube and uterus, maintained that they were insensitive, but Sampson does not agree with this. He has found from observations on other cases, beside the ten already referred to, that in some instances these organs are sensitive to pain and, thinks it possible that their sensibility varies in different individuals. The sensibility seems to decrease with age. The ovary appears to be less sensitive than the tube or uterus, but all are much less sensitive than the parietal peritoneum. In all cases the parietal peritoneum was found to be very sensitive; retractors had to be used with extreme care, and rubbing the parietal peritoneum with gauze caused severe pain. The omentum and intestines were found to be insensitive to pinching.

It is easy to understand that an ovarian cyst may not cause pain, even when palpated, nor even if ruptured unless the contents irritate some sensitive structures like the parietal peritoneum. Pain will, however, always occur whenever there is traction upon the pedicle. Slight traction may only cause backache, but the pain caused by strong traction may be too severe for the patient to locate it. Twisting of the pedicle must invariably cause severe pain.

In conclusion, Sampson says: "The presence of abdominal pelvic pain in patients with ovarian cysts usually indicates either secondary changes in the cysts, involving some sensitive nearby structure, or the presence of some other condition, independent of the cyst, which may cause pain. The principal causes of pain arising from ovarian cysts, are traction or twisting of the pedicles, or the traction on the parietal peritoneum from adhesions."

ROBERT JARDINE.

Ovarian Cyst with Torsion of the Pedicle in a Child.

ROBERT C. LOVING (*Journ. Amer. Med. Assoc.*, 1908, vol. i, p. 1350) says a child aged six was suddenly attacked by pain in the hypogastrium and by a pressing desire to pass water. She got up constantly during the night trying to empty her bladder. When seen the following morning the child was in great pain and a few drops of urine were being expelled every few minutes. The abdomen was rigid and tender, and there was a prominent tumour in the hypogastrium, occupying the entire pelvis and extending as far as the umbilicus. The rounded end of the tumour could be felt by the rectum. The abdomen was opened and a large unilocular cyst of the right ovary was removed. It was twisted on its pedicle through one complete revolution and a half; the venous circulation being strangulated with consequent enlargement of the tumour which measured 34·5 centimetres round the circumference and weighed 640 grammes. The patient made an uneventful recovery.

C. NEPEAN LONGRIDGE.

Solid Teratomy of the Ovary.

F. BUKOJEMSKY, Odessa (*Archiv für Gynäkol.*, Bd. lxxxv, p. 42) reports the following case: The patient, a married woman, was 55 years of age, and had had one child at eight months and one miscarriage at the third month of pregnancy. For the last five years she had been in poor health and felt a tumour on the left side of the pelvis which became more and more painful. On palpation a solid growth the size of a child's head was felt in front and to the left of the uterus. Laparotomy was performed, two pints of opaque greenish fluid were evacuated and the tumour, which was adherent to some coils of intestines and enclosed in a solid inflammatory capsule, was removed. The left ovary could not be found, but the thickened left tube ran across the surface of the tumour; the right ovary and tube were normal. Two small subserous fibromyomata were taken away from the fundus uteri, but the uterus itself and the right appendages were left.

Seven months after operation the uterus was found to be slightly enlarged with a nodular surface, and three and a half months later the uterus was the size of a four months pregnancy and fixed. A diffuse painful infiltration occupied the site of the tumour removed and the patient was very cachectic. No further operation was attempted.

The tumour was a serous cyst of the left ovary with a wall from 2 to 3 mm. in thickness. Attached to its inner and otherwise smooth surface, there was a solid, nodular tumour, the size of a small Tangerine orange and two smaller ones the size of peas. On section the large tumour showed several partitions of different colours—red, brownish and ivory. In the centre a hard bony mass was found.

The microscopic examination shows a great variety of structures. The chief mass consists of embryonic connective tissue with numerous tubules which are lined, like glands, with cylindrical epithelium; the bony mass consists of real bone tissues and hyaline cartilage. Epithelial cells with mytoses fill the lumina of the tubules, in parts of which they invade the walls and penetrate into the adjoining connective tissue. In other parts of the tubules the epithelial cells have enormous nuclei and protoplasm of irregular shape. Where the tubules are less numerous in the sections, the embryonic connective-tissue is proliferated and represents the typical round-celled sarcoma. Minute cysts filled with mucus are found in one piece of the tumour. Near its attachment to the main cyst there are a great many muscular fibres, both striped and unstriped, and remains of the corpora albicantia, these being the only traces of ovarian tissue proper. The two smaller tumours showed the same structure as the large one.

The author supposes the tumour to have originated from an ovum impregnated in the ovary; the products of two germinal layers, the inner and the median layers, could be recognized. Bukojemsky calls the tumour a bidermona, which is a subdivision of embryoma or solid teratoma of the ovary. H. T. Hicks.

Bilateral Tubal Pregnancy.

H. Greenberg (*Journ. Amer. Med. Assoc.*, vol. xlix, p. 575).—The patient was an anæmic woman, aged 29. Her menstruation had always been regular and normal, till, at the last period, considerable pain was experienced, but a piece of membrane was passed on the third day and the pain and flow ceased. On examination the uterus was found to be slightly enlarged and tender at the fundus, and the adnexa were thickened. Her temperature was 101·8°. After six weeks' rest in bed she suddenly had a rigor, and began to pass large quantities of blood in her urine. A second pelvic examination revealed an enlarged uterus with a soft semifluctuating mass about the size of a hen's egg on either side. As she had not menstruated during the last six weeks a diagnosis of extra-uterine gestation with rupture of the sac into the bladder was made and operation advised.

Fluid and clotted blood was found in the lower abdomen; several coils of intestine were adherent to the pelvic organs. The left Fallopian tube was enlarged, filled with blood-clot and ruptured towards its fimbriated end. On the right side a similar but larger mass was found resting between the uterus and the bladder and adherent to the latter. There was a rent in the bladder wall through which the bleeding had taken place. C. Nepean Longridge.

Extrauterine Pregnancy.

Lindenstein (*Beiträge z. kl. Chirurgie*, Bd. lvi, Ht. 3) reports upon 25 cases of ectopic gestation operated upon in the Nuremberg City Hospital in 1903—1907, and discusses the symptoms, differential diagnosis and prognosis. He holds immediate operation to be urgently indicated by rupture, even if the patient be in collapse. Not one of 14 cases admitted and operated upon under symptoms of

internal hæmorrhage was lost. He recommends subcutaneous infusion of physiological salt solution (3 or 4 litres per day) as a most important help. All the 25 cases were treated and cured by laparotomy, and Lindenstein concurs in the opinion expressed by Döderlein (who in 111 cases operated on lost only 4) that timely operative termination of tubal pregnancy is undoubtedly less dangerous than simple expectation, and that we have no means of preventing serious hæmorrhage, the occurrence of which is more or less a matter of chance.

Primary Ovarian Pregnancy.

C. C. Norris and C. B. Mitchell (*Surgery, Gynæcology and Obstetrics*, May, 1908) describe the macroscopic and microscopic appearances of an early ovarian pregnancy which satisfies Spiegelberg's criteria. No clinical details are given. The Fallopian tube and mesosalpinx were normal and free from adhesions. The ruptured gestation sac was cup-shaped and attached by its convex surface to the lower surface of the ovary. It measured 4 cm. by 5, and appeared to be part of a sac which originally had measured about 8 cm. in diameter. The wall varied from 4 to 10 mm. in thickness, and microscopically consisted of organized blood-clot, chorionic villi and trophoblastic cells. The ovary itself was unusually vascular, but otherwise normal. A thick band of lutein cells separated the gestation sac from the ovarian stroma. The pregnancy had evidently taken place in a follicle. A good drawing of the specimen is given. Miles H. Phillips.

A Case of Cornual Pregnancy.

Lequeux (*Bull. Soc. Obstet.*, Paris, 1908, No. 5) gives notes of a case of a woman pregnant for the second time, the first confinement being normal in character, who after four months' amenorrhœa had a severe uterine hæmorrhage brought on by driving in a cab. The discharge contained clots and pieces of membrane and lasted two days, but recurred later. At this time she was treated by her doctor for threatened abortion. On examination some days later the uterus was found to be considerably enlarged; behind it and to the left, low down in the pelvis, there was a tumour mass, soft in consistence but non-fluctuant, rising out of the pelvis and extending to four fingers' breadth above the symphysis. This tumour was in close apposition to the uterus, but seemed independent of it, though no definite groove could be made out between them. The diagnosis lay between a cornual and an extra-uterine pregnancy, but the absence of pain and the difficulty of making out the fundus pointed to the former condition. The patient was kept in bed for some weeks, but owing to a return of the hæmorrhage an operation was decided upon. Under anæsthesia the uterus on the right side was found to be small in size; on the left, at the junction of the body and cornu, there was a mass doubled over on the uterus itself, and retroverted with the uterus. The cervix was dilated with difficulty, and on introducing the curette a second cavity was felt in the uterus corresponding to the mass on the left side.

Two points of interest in the case, as pointed out by Lequeux, lie in the absence of pain, in the small size of the uterus and in the rigidity of the cervix. In cornual pregnancy the uterus seems to be little affected, the cervix and lower uterine segment not being softened. The zone of tissue between the pregnant and the remaining portion of the uterus, is greatly softened so as to give the impression of a separate mass bent over on itself. A. Louise McIlroy.

The Duration of Pregnancy and its Relation to the Last Menstrual Period and Conception.

Schultze (*Gynækologische Rundschau*, 1908, Ht. 10) states that the frequency with which pregnancy seems to be prolonged is due, in most cases, to miscalculation.

Estimating the duration from the first day of the last menstrual period will, in many cases, apparently increase the number of over full-time pregnancies. The actual conception frequently does not occur till just before the next period, and in two cases under his own observation 26 days had to be subtracted. Nor is the large size of the child evidence of over-time pregnancy, for, v. Winckel has shown that 6 per cent. of children weighing over 4,000 grams were born 261—270 days from the first day of the last period, and had these children been carried up to 280 days their weight would have been enormous. He has also shown that children whose gestation is calculated from the first missed period are frequently heavier than those calculated from the last normal menstruation. He draws attention to the medico-legal aspect, and the importance of correct calculation for establishing the illegitimacy or legitimacy of the child. E. Scott Carmichael.

Pyelorrhagia during Pregnancy.

Baroni (*Annali di Ostetricia*, February, 1908) reports: A pluripara, about the midle of the fifth month of pregnancy, began to pass a considerable quantity of blood in her urine. Albumen was also present. Objective examination showed nothing abnormal. On bimanual palpation there was elicited in the region of the kidneys a slight feeling of uneasiness. Towards the middle of the seventh month the fœtal movements ceased and at the same time the blood and albumen disappeared from the urine, but a large amount of acetone was now found in it, and this fact, coupled with the cessation of fœtal movements, led to the conclusion that the fœtus was dead. In effect the woman gave birth to a dead infant a few days later. Recovery ran a normal course.

In this case symptoms of malignant disease, of calculus, or of inflammation of bladder or urethra, were entirely absent. The woman had never had pain nor tenesmus in the bladder. Nor was there muco-pus in the urine, and the possibility of a pyelitis by ascending infection from the bladder was therefore excluded. The diagnosis made was: nephritis of pregnancy associated with pyelorrhagia.

Possibly, toxins absorbed from the embryo remaining unneutralized in the mother's blood caused renal irritation and nephritis, which in turn led to the pyelorrhagia. With the death of the fœtus the physical signs of nephritis disappeared. Further the mere pressure of the gravid uterus on the ureters and pelvic veins might have caused congestion of renal blood-vessels, hence pyelorrhagia and a condition favourable for nephritis. J. H. F.

Supravaginal Amputation of a 16 weeks Pregnant Uterus for Osteomalacia.

Gallatia (*Gynækologische Rundschau*, 1908, Ht. 11) reports three cases of osteomalacia. In two, the pregnancy went to term, but in the third the deformities were so marked that the patient could not have survived till the end of pregnancy. The case is striking in that it is a classical example of the unfavourable influence of pregnancy on the osteomalacic process, and of the astonishing fertility of women suffering from that disease.

Even at such an early period, birth per vias naturales was impossible, though the patient had had six children in the first six years of her married life; all those births ended spontaneously, but with severe sacral pain increased at each birth, and diminished stature after each labour. Two more children were delivered prematurely under an anæsthetic. Still another pregnancy ended with difficulty and with death of the child. From the date of the ninth and last birth, the patient was confined to bed for three years. The sitting posture had caused marked kyphosis and approximation of the costal margins to the pelvic crests. After three years she began to walk about, but abstained from sexual intercourse for seven years. At

the age of 43, believing that with the approach of the menopause, pregnancy was unlikely, coitus was permitted, and she again became pregnant. The pain during her pregnancy was very severe, and was associated with marked orthopnœa and cyanosis. At the 16th week it was decided that pregnancy should be stopped, and and total extirpation of the gravid uterus was performed. The patient had an uninterrupted recovery.

In other eight cases pregnancy was terminated: in one by spontaneous delivery, a vertex presentation, living child; in four by Cæsarean section, with castration, living child; in one by Cæsarean section, Porro, living child; in one by total extirpation of the uterus along with dead fœtus; in one by supravaginal extirpation of four months' uterus and fœtus. All these patients were multiparæ, with an average of 7·75 children, the actual numbers varying from 4 to 15.

E. Scott Carmichael.

Diabetes Mellitus as an Indication for the Interruption of Pregnancy.

A. Schottelius (*Münchener m. Wochenschr.*, 1908, No. 18, S. 957) reports a case from the Leipzig University Frauenklinik, a quartipara, 29 years of age, admitted in deep coma, supposed to be eclamptic; she was delivered artificially of a dead macerated fœtus, 35 cm. long, and expired half an hour afterwards, still comatose. There was sugar and diacetic acid, but no albumen in the small amount of urine that had been obtained with a catheter, and the autopsy confirmed the existence of diabetes mellitus.

True diabetes mellitus is a rare complication of pregnancy, but Matthews Duncan collected 22 cases many years ago. He also described an intermittent diabetes occurring in successive pregnancies and vanishing after childbed. The lactosuria occasionally met with in pregnancy and childbed and the alimentary glycosuria to which pregnant women are subject are not of great importance, but diabetes mellitus is a most serious complication of pregnancy. In from 50 to 66 per cent. of the cases the pregnancy is interrupted. The child dies in the seventh or eighth month, and is generally expelled in a macerated condition some months later. Or if the pregnancy reaches its normal end the child is as a rule badly developed and of weak vitality. The prognosis for the mothers is unfavourable also; of those in whom conception supervenes on existing diabetes one-third do not recover, and when the disease supervenes on the pregnancy one-fourth succumb. Concise reports are given of nine cases of diabetic coma in pregnancy and childbed, eight of which were fatal; the ninth, after spontaneous delivery in coma, recovered.

The serious and always uncertain prognosis of diabetes in pregnancy suggests the question whether such a malady does not justify the termination of the pregnancy by the induction of premature labour or abortion. Schottelius quotes the opinions of various enquirers. Matthews Duncan and Fry give no definite answer; Graefe, Kleinwächter, Dankworth and Schade a decided negative, unless there is some further indication, such as hydramnios or contraction of the pelvis; Born, Partridge, Fellner, and Hofmeier an affirmative. Schottelius concludes that the interruption of pregnancy is not only justified by the presence of diabetes, but that as the intrauterine death of the fœtus makes the prognosis for the mother much worse, the induction of labour should not be delayed.

Hyoscine Anæsthesia in Obstetrics.

G. F. Butler (*Amer. Journ. Obstet.*, vol. lvi, p. 171).—The object sought is the production of a peculiar state of semi-narcosis known as Dämmerschlaf or twilight sleep, from which the patient may be awakened at any moment if desired, without retaining any recollection of what has happened to her in the meantime.

The method has proved satisfactory in giving relief to the pain of labour. But still greater value is claimed for it, by sparing the mother the "psychic traumata of childbirth." It is important that the alkaloids used should be absolutely pure. Scopolamine is apt to be contaminated with bodies which seriously modify its action. Hyoscine, though much more expensive, can be readily obtained in a state of chemical purity. The first injection is given when the pains become really severe, and consists of three or four decimilligrams of hyoscine, with one centigram of morphine. Half an hour later the patient is shown some test object, and in thirty minutes more is asked if she remembers what was shown to her. The capacity to remember regulates the dose, rather than the cries of the patient which are less significant. The total doses of hyoscine spread over several hours, averages three-quarters of a milligram.

The drug does not appear to have any definite effect upon the uterine contractions. A list is added of authors who have used scopolamine either alone or combined with morphine, chloroform or ether. It oppears that in America "this method is being employed by the rank and file of the profession with an enthusiasm which partakes of recklessness."

C. Nepean Longridge.

The Action of Scopolamin-Morphia during Labour.

W. Steffen (*Archiv f. Gyn.*, Bd. lxxxi, p. 451).—The results obtained by this drug for obtainig semi-sleep (Dämmerschlaf) at Leopold's hospital in Dresden have not been satisfactory, and in opposition to other writers, especially Gauss, who claims "ideal" results, Steffen reports that scopolamin-morphia is: (1) insufficient for the desired effect; (2) not free from danger for mother and child; (3) not to be recommended for private practice, because, owing to its erratic action the accoucheur must be in constant attention.

H. T. Hicks.

Three Cases of Central Rupture of the Perinæum.

Müller (*Gynækologische Rundschau*, 1908, Heft 10).—This accident is of uncommon occurrence, as, according to von Winckel's statistics, only two cases occurred in 20,000 labours. The cases Müller reports were all primiparæ and the conditions in each were similar. Each was associated with a deep perinæum, and some delay in the birth. The rupture occurred in the form of a round opening the size of a shilling immediately in front of the anus. Lateral incisions were made in each case to prevent a further central tear and a bridge of tissue remained separating the opening from the posterior margin of the vulva. These conditions correspond with those reported in other cases and would appear to be typical.

E. Scott Carmichael.

A New Grip of the Uterus for Atonic Post-partum Hœmorrhage.

Lajos Göth, Klausenburg (*Zentralb. f. Gyn.*, 1908, No. 15), recommends that, in atonic hæmorrhage, the uterus should be seized about the level of the contraction ring between the thumb and index finger of the hand next the side of the bed, and while the fingers are firmly approximated the entire organ should be drawn upwards; the other hand should at the same time press the corpus uteri forwards and rub the fundus, preferentially the part next the posterior wall. The cavity of the uterus is at the same time compressed by the burden upon its posterior surface. The excellent effects of this method are demonstrated by a large number of cases, and are explained by the author as follows:—By the forcible upward traction of the uterus and the dislocation of the vaginal vault consequent upon it, reflex impressions are set up similar to those obtained by the combined method of examination (bimanual compression, etc.). If the post partum atony persist more than a short time (0·5 to 1·0 minute) the case invariably is one which cannot be dealt with by mechanical stimulants, but requires plugging.

The Treatment of Post-partum Hæmorrhage with a New Method of Hæmostasis.

HERBERT MARTON STOWE (*Surgery, Gynæcology and Obstetrics*, vol. v) uses the following method of controlling post partum hæmorrhage from atony of the uterus. He places a sterile towel, or one wrung out of a 1 in 1000 corrosive sublimate solution, over the abdomen, then grasps and firmly kneeds the fundus and presses it down into the inlet; the other hand, encased in a sterile glove, is passed into the vagina and as much as possible of the cervix and lower uterine segment is seized and pushed upwards into Bandl's ring until the fundus is reached. The cervix and lower uterine segment is thus pushed against the walls of the fundus and the cavity of the uterus is obliterated and direct pressure brought to bear against the bleeding sinuses. By inverting the lower part of the uterus, direct pressure is brought to bear on the uterine arteries and the blood supply is cut off. As soon as the uterus contracts the hand is forced out and the uterine cavity is re-formed, but the retraction will prevent bleeding. If the bleeding should recur the same performance may be gone through, but a hot intra-uterine douche may suffice. If in spite of the compression and douche the bleeding persists the uterovaginal tamponade should be used. Stowe says: "Pressure on the aorta, douches with various chemicals, electricity and such measures, belong to the period of the long ago and should be dispensed with."

ROBERT JARDINE.

Early Rising during the Puerperium.

ROSENFELD (*Gynækologische Rundschau*, 1908, Heft 11).—Clinicians differ as to the length of time a woman should remain in bed after labour. Prolonged rest in bed is, according to some, responsible for many cases of retro-displacements. Gigli and Krönig have recently advised that their patients should get up on the sixth day. Embolus, hæmorrhage and prolapse would seem to be risks of too early rising.

Rosenfeld has recently allowed his patients to get up on the third or fourth day for one hour. This was increased daily until they left the hospital, from the eighth to the tenth day. Comparing a series of patient so treated with those who remained in bed a week or longer, Rosenfeld states that at the end of a week the general condition of the former was very much better than that of the latter. They felt well and strong and the involution of the uterus was more advanced.

E. SCOTT CARMICHAEL.

The Local Treatment of Puerperal Infection with Alcohol.

G. H. NOBLE (*Amer. Journ. Obstet.*, lxi, p. 189).—In the course of a long article on this subject the following method of treating a septic uterine cavity is recommended:—The vagina and uterine cavity are first thoroughly cleansed, presumably by douching. A small sterile catheter, to the tip of which is attached a narrow strip of sterilized gauze is then introduced into the uterus. The gauze is then gently packed around the catheter until the uterine cavity is loosely filled. The end of the catheter is brought out through a sterile dressing. Through the catheter one to two drachms of fifty or seventy-five per cent. alcohol are injected every twenty or thirty minutes for the first twenty-four of forty-eight hours and as the temperature declines the intervals between the injections are gradually lengthened. If after the careful application of this treatment the temperature and pulse continue to increase it may be taken as evidence that the process of infection has extended beyond the uterine cavity and that local treatment is useless. C. NEPEAN LONGRIDGE.

Perinephritic Abscess following Parturition.

T. SHELTON HORSLEY (*Journ. Amer. Med. Assoc.*, 1908, vol. l, p. 763) reports three cases in which the patients developed large perinephritic abscesses within three

months after confinement. The right side was affected in all cases. The patients all complained of pain in the right side about the hip and inability to walk. They were anæmic and had lost flesh. The urine in one case contained a few pus cells. The abscesses were opened and all the patients made good recoveries. Vaginal examination showed no evidence of inflammation in or about the uterus, tubes or ovaries. It is interesting to note that in all three cases the right kidney was affected as in the pyelonephritis of pregnancy. C. NEPEAN LONGRIDGE.

Thrombo-phlebitis of Left Subclavian Vein due to Puerperal Endocarditis.

RADAELLI (*Annali di Ostetricia*, February, 1908) reports :—A secundipara, aged 27, showed signs of septic uterine infection ten days after delivery. Symptoms of acute endocarditis supervened and the patient was removed to hospital, when objective examinations showed : an enlarged uterus, fœtid lochia, marked dilatation of the heart with a visible systolic thrill, a loud mitral systolic murmur, and an accentuated second sound in the pulmonary area. There was no œdema of the limbs. After twenty days in the hospital, the patient left with all her febrile and septic symptoms apparently cured. Her pulse was good and she had no dyspnœa, but a week after returning home she began to suffer from intense prostration and the febrile and cardiac symptoms returned. Moreover, the fingers of her left hand became swollen, and the swelling rapidly extended to the left arm, shoulder and side. The onset of the swelling was unaccompanied by pain. Patient was re-admitted into the hospital in such a state of collapse that stimulating injections had to be given her.

Objective examination showed that in addition to œdema of left arm and side, there was a hard, non-pulsating, immobile tumour in the left supraclavicular fossa in connection with the subclavian vein. The tumour was about the size of a hazel-nut and somewhat tender to pressure. The heart was in the same condition as before. After three days a slight improvement in the patient's condition began; the œdema diminished and in a few days disappeared; the febrile and cardiac symptoms gradually passed away, and in eighteen days the patient was completely cured.

In this case the infection by septic micro-organisms, instead of taking the usual route from the uterus by the hypogastric, iliac and femoral veins and setting up phlegmasia alba, had found its way through the left heart to the subclavian vein.

J. H. F.

The Serotherapy of Streptococcic Infection.

ZANGEMEISTER, Königsberg (*Münchener m. Wchnschr.*, 1908, No. 16, S. 837), concludes from personal researches :—

(1) That the antistreptococcic sera now prepared from horses are absolutely ineffective in apes, as they most probably are in man.

(2) That one can immunize apes against streptococci provided that one employs serum from a suitable kind of animal.

As in experiments on animals, the species need not be too intimately related in order to obtain reaction (*e.g.*, the horse and the mouse), one is justified in assuming that a serum immunizing apes will be effective in men also. But further proof is necessary.

(3) That antistreptococcic sera, in so far as they cannot be tested directly in man, must be tested on apes, for inferences as to the efficiency of a serum in men from its efficiency in apes may be drawn with most probability because in the first place apes are relatively closely allied to men, and secondly because apes prove as refractory to the action of horse serum as men do.

(4) Immunizing serum from horses has proved not only useless, but in apes has been absolutely deleterious, inasmuch as it has hastened the death of the animal experimented upon.

This result was not accidental, but was the same in both series of experiments with different horse sera; moreover, the effects of ape sera on mice were analogous.

That sera from strange species may be poisonous was known, but the fact that infection with streptococci may be favoured by them must lead us to be most reluctant to employ antistreptococcic serum obtained from different species. Quite possibly similar conditions obtain in regard to other infective germs, so that the effect of serotherapy in general is called in question: once large doses of serum from a different species are required, the deleterious effects may completely paralyse the beneficial.

Lysol Poisoning from Uterine Irrigation.

Piltz, Erlangen (*Münchener m. Wochenschr.*, 1908, No. 18, S. 965), points out that of all the disinfectants recently introduced, lysol has found most favour and general adoption on account of its great germicidal power and its comparatively slight toxicity. But it was soon found that this toxicity had been underestimated. Numerous cases were published in which the use of very dilute solutions on wounded surfaces, and even on the unwounded skin, had caused local or general dermatitis, and even systemic intoxication; while instances of poisoning by lysol, pure or diluted, taken by mistake or for suicidal purposes, have been recorded with shocking frequency. Lysol is still extensively employed in gynæcological and obstetric practice for vaginal and intra-uterine irrigation. As very dilute solutions are employed, poisoning has not been frequent, but quite a number of cases have been published in which such irrigation has led to inflammations of the external genitals and of the rest of the body, and later to serious and even fatal intoxication. Cramer, of Bonn, has reported a case of infected abortion in which intra-uterine irrigation with a one per cent. solution of lysol led to acute and fatal hæmorrhagic nephritis. Hammer, of Würzburg, has published a similar fatal case. Serious symptoms, collapse and pelvic peritonitis, have followed the use of intra-uterine injections used criminally to cause abortion.

Piltz relates a case of severe intoxication with acute nephritis from the Erlangen Klinik. The woman had been treated elsewhere for abortion, and her uterus had been irrigated twice with a one per cent. solution of lysol. She recovered after a serious illness.

No doubt in many women the kidneys during pregnancy are in a condition in which comparatively small quantities of toxic matter may cause sudden and serious lesions. Our task, therefore, comprises prophylaxis, and with this view it has been suggested that for intra-uterine irrigations the lysol solution should be as weak as possible. There is, however, a limit: even in the test tube a solution weaker than $\frac{1}{3}$ per cent. has no disinfecting power worth mentioning; to have any effect at all in its brief contact with the cavity of the puerperal uterus the solution would have to be stronger. Piltz therefore considers that it would be more rational to give up the use of such disinfectants for the irrigation of the puerperal uterus altogether. Boiled water or sterilized salt solution will be quite sufficient to control hæmorrhage or remove clotted masses of secretion out of the uterus even in infected cases. Very weak solutions of lysol are useless, stronger ones are dangerous.

In case of lysol poisoning from intra-uterine irrigation the indication is to dilute the poison and remove it from the system as soon as possible, and to compensate possible failure of the heart. Infusion of normal salt solution is desirable, and the use of mild diuretics.

Observations on the Effect of Transfusing the Kidneys of Dogs with Placental Extract.

P. Mathes, Graz (*Zeitschr. f. Geburts. u Gynäkol.*, Bd. lxii, Ht. 1) has undertaken an experimental investigation into the causation of the œdema of the lower

extremities so commonly met with in pregnant women. The old view that this œdema is due to pressure by the pregnant uterus is now untenable, and a later idea ascribing it to retention of sodium chloride in the tissues owing to a toxic disturbance of the kidneys is not upheld by facts; for Birnbaum who investigated the subject chemically, could not find any evidence that the kidneys keep back sodium chloride in pregnancy. It is much more probable that the vessel-wall itself is in some way impaired by the circulation of a toxic substance in the blood. Mathes thinks that this toxic substance may be derived from the placenta, and has endeavoured to prove his hypothesis in the following manner. In order to obtain a "closed vascular system" he has used the excised kidney. The kidneys of dogs were carefully excised and weighed. The kidney of one side was then transfused through the renal vessels with an extract of human placenta. Any increase in weight after the termination of the transfusion represents the degree of the resulting œdema. The results were compared with control experiments, by tranfusing the kidney of the other side with other solutions. A carefully-regulated apparatus was used, and both kidneys were transfused with the different solutions simultaneously, so that the pressure of the fluid and the rate of transfusion was equal in both. As an example, in the first set of experiments the right kidney was transfused with a solution consisting of 61 c.cm. of dog's serum, 59 c.cm. of physiological salt solution, and 17 c.cm. of placental extract. The transfusion lasted one hour, and the kidney was found to have increased 32 per cent. in weight. The left kidney was simultaneously transfused with a solution consisting of 61 c.cm. of dog's serum, 59 c.cm. of salt solution and 17 cm. of human serum. It increased in weight only 26 per cent. Heating the placental extract to 64°C. rendered it inactive, and it had no further effect in causing œdema. From his experiments, Mathes concludes that in the extract from human placenta there is a substance which hastens the passage of fluids through the vessel-walls of kidneys of dogs. EARDLEY HOLLAND.

Gonococcic Infection as a Cause of Blindness.

CLIFTON T. EDGAR (*Journ. Amer. Med. Assoc.*, vol. xlix, p. 411).—Edgar states that there are between 6,000 and 7,000 people in the United States who have been blinded by ophthalmia neonatorum. A committee of the American Medical Association has endeavoured to determine the most efficient and most popular method of combating the disease. It appears that a solution of silver nitrate is most commonly used, and the majority of the physicians who replied to a circular, preferred a 1 per cent. solution as being less likely to cause a silver catarrh. Edgar has had some experiments performed with a view to determining the action of weak silver nitrate solutions upon the vitality of the gonococcus, and found that the exposure of a living culture of gonococcus to a 0·5 per cent. solution for the space of 15 seconds resulted in the death of the organism.

In the majority of the American maternity hospitals a solution of 1 per cent. is used, and this is neutralized by the instillation of salt solution or boric acid solutions, with the object of avoiding silver catarrh. In a series of 1,000 infants treated in this way at the Bellevue Emergency Hospital there were no instances of ophthalmia neonatorum, but twenty-five infants, of 2½ per cent., showed symptoms of mild silver catarrh, the longest duration of which was three days.

C. NEPEAN LONGRIDGE.

Vaccine Treatment of Gonorrhœal Vulvovaginitis in Children.

W. J. BUTLER and J. P. LONG (*Journ. Amer. Med. Assoc.*, 1908, vol. l, p. 744) report several cases in which vaccination gave satisfactory results. The injections were controlled by estimations of the opsonic index, and they found the gonococcus easy

to work with provided that young cultures were used. A culture on blood serum or blood agar not more than eight hours old was used. The dose used varied from one million to fifty million gonococci. C. Nepean Longridge.

Bilateral Aplasia of Müller's Ducts.

Nowikow (*Zentralb. f. Gynäkol.*, 1908, No. 12, S. 408) reports: An individual, 23 years of age, of decidedly feminine appearance, and otherwise of entirely normal development, though she had never menstruated, suffered every month for one or two days from maddening pain in her lower abdomen. Married for 7 years, intercourse at first hardly possible, had always been difficult and to her extremely painful. The external genitals were poorly developed, the introitus was surrounded by a whitish fibrous ring, and a blind canal extended from it for 3 or 4 cm. upwards. The internal organs could not be made out by palpation, but high up to the right, and high upon the lateral wall of the pelvis to the left, oval bodies could be reached: the first was fixed but the second could be pushed to one side, and neither of these bodies semeed to be connected with the rudimentary vagina. On abdominal section, the right kidney was found lying parallel to the spinal column, with its lower pole touching the linea innominata; the pelvis was empty. The ovaries were found on the side walls of the large pelvis: the right 7:4:3·5 cm. in dimension lay outside and parallel to the kidney, attached to a broad band forming a true mesoöphoron, the upper edge of this fold of peritoneum passed on to the upper edge of the kidney, the lower edge on to a normally-sized round ligament. At the upper pole of the ovary, and intimately attached to it, there was a rudimentary tube with fimbriated ampulla. The left ovary lay in a symmetrical position to the right, it was smaller, and was also provided with a mesentery. Both ovaries were removed, and the woman recovered, and five months later was found to be very well, having suffered no pains since the operation.

No theories such as Daniel's or Ballowitz's seem to fit this case, and Nowikow suggests that the Wolffian bodies may have been of excessive size and have interfered with the development of Müller's ducts. The rudimentary tube he considers a derivative of the Wolffian body originating from the canaliculi of the epoophoron and analogous to the epidydimis in the male. The absence of descent of the ovaries he considers evidence that the descent is normally due to the development of the structures formed from Müller's ducts. Clinically, he thinks, the case demonstrates the existence of ovarian dysmenorrhœa, and that operation is justifiable and suitable treatment for such dysmenorrhœa.

REPORTS OF SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

Obstetrical and Gynæcological Section.

Meeting held May 14th, 1908. The President, Dr. Herbert Spencer, *in the Chair.*

Dr. R. H. Paramore read a paper on the

Supports of the Female Pelvic Viscera,

which appeared as an original article on p. 391 of the last number of the Journal.

Professor Paterson (Liverpool) submitted that a great deal of sound anatomical work had been done in recent years in regard to the mechanical supports of the pelvic viscera. With regard to the means of support of the pelvic viscera, he was inclined to lay little stress on the so-called "intra-abdominal pressure," nor did he ascribe great importance to the power of the pelvic ducts, vessels, and peri-vascular, connective tissue to maintain the viscera in position. There were, however, two series of structures essentially responsible for the maintenance of normal conditions within the pelvic cavity. The structures comprising the pelvic floor formed, in his opinion, the chief factors in supporting the viscera—the symphysis pubis, triangular ligaments and compressor urethræ, perineal body, levatores ani and external sphincters, and the ano-coccygeal body. Any laceration or weakening of these structures would predispose to prolapse of the superimposed viscera. The rectal ampulla, when distended by fæces, is capable of serving as a support for the vagina and uterus. It is the genito-urinary passages—prostatic urethra or vagina and urethra—that are bound down to the pelvic walls and floor in their course to the perinæum. This is effected by means of a special investment of the pelvic fascia (suspensory ligament of the vagina and urethra), which, springing from the sides of the pelvis in the neighbourhood of the ischial spine as a well-defined sickle-shaped fold sweeps inwards to envelope the urethra and vagina, leaving a clear portion of the pelvic cavity behind for the passage of the rectum. This fold of pelvic fascia is very vascular. It separates into two layers, of which one sweeps across the middle line (recto-vaginal layer), and, separating the vagina from the rectum, is attached below to the perineal body. The upper layer has an attachment to the white line, and becomes the lateral true ligament of the bladder. Below the bladder in front it becomes the anterior true ligament of the bladder on each side, and gains attachment to the symphysis pubis. The ligamentum transversale colli of Mackenrodt is probably represented by the free edge of this band of pelvic fascia, which gains attachment to the lateral fornix of the vagina.

Mr. Arthur Keith said that his investigations led him to infer that prolapse, partial or complete, of the pelvic viscera is primarily prevented by the action of the musculature of the pelvic floor. It is necessary to distinguish two distinct problems: (1) The manner in which the uterus is maintained in its normal relationship to the pelvic floor; and (2) the manner in which the uterus is maintained in its normal relationship to the pelvic viscera. It is with the first of these problems with which we are chiefly concerned. At the present time three structures are regarded as normal uterine supports:—(1) The musculature of the pelvic floor; (2) the visceral ligament of the pelvic fascia; (3) the strong perivascular and perineural sheaths

which surround the pelvic vessels and nerves. It is not to the perineural and perivascular fibrous supports that the primary duty of supporting the uterus can be ascribed. They serve primarily to safeguard the blood and nerve supply of the uterus. The manner in which a Hodge's pessary supports a uterus which tends to become prolapsed is simply by expanding and keeping expanded and rigid the vagina, whereby the damaged levatores ani which can get no purchase on a flaccid vagina can obtain a hold on and keep up a rigid vagina.

Dr. W. E. Fothergill (Manchester) adhered to the views he had previously expressed as to the supports of the pelvic viscera. It required but a slight mental effort to imagine a woman with a perfect levator ani and perineum, in whom the uterus, vagina and bladder had been completely freed from their attachments and lay loose within the pelvis resting upon the upper surface of the pelvic diaphragm. Did anyone suppose that the organs would remain there for long? The pelvic diaphragm and the sphincter layer of muscles could not prevent the escape of the fœtus or of a mass of fæces. Why should it be supposed that they prevent the escape of the plastic mass formed by the uterus, vagina and bladder? It was obvious that these organs were normally supported by the connective tissue intervening between them and the sides of the pelvis, and the important portion of this connective tissue was that forming the perivascular sheaths.

Dr. Hastings Tweedy (Dublin) said that the author had furnished them with anatomical data which clearly showed that strong ligaments crossed the lateral fornices and formed, in Dr. Ovenden's words, "easily defined and striking objects": that they were of themselves capable of supporting the uterus in a normal position; that when they were severed the cervix sagged downward, and this in spite of the fact that all the other uterine ligaments were uninjured. There is convincing proof that these ligaments, when acting normally, keep the cervix tucked upwards and backwards, and when performing this function they are subjected to no greater strain than those which affect other similar structures; as, for instance, liver ligaments. The levator ani muscle is essentially the muscle which keeps the vagina from deformity, and, offering a counter-force to the intra-abdominal pressure, it enables the anteflexed uterus to lie between these forces with little aid from its ligaments. If, however, the cervix descends it is powerless to maintain the uterus in anteflexion, nor can it do so if the uterus has once fallen into retroflexion. A tear in the pubo-coccygeal fibres will inevitably result in the occurrence of cystocele and rectocele, with slow descent of the cervix. He had never seen a procidentia due to childbirth in which the cervix was not torn. His operative experience furnished him with further evidence as to the importance of these ligaments.

Dr. Briggs (Liverpool) held, on both anatomical and clinical evidence, that the pelvic viscera were supported by (a) the levatores ani, (b) their dense lateral pelvic fasciæ, (c) the perivascular and other loose cellular tissue. The integrity of the pelvic supports, like the integrity of a joint, did not depend upon ligaments. Fascial structures were purely passive and were maintained or restored by their muscles. The widening of the linea alba during the later months of pregnancy was corrected in vigorous women after labour by the tonicity and subsequent re-approximation of the muscular recti abdominales. Similarly in planning operations in suitable cases of uterine prolapse, Dr. Briggs believed the restoration of the levatores ani and their fasciæ by extensive buried sutures without the removal of any tissues, was still to remain the main aim of the surgeon. The operative treatment of prolapsus uteri rests upon the restoration of the muscular and fascial strata.

Dr. Alexander Macphail (Glasgow) remarked that the full and complete contributions of other anatomists to the discussion had left very little of practical value to be added from that point of view. He would emphasise, however, the distinct attachment of the levator ani to the vaginal wall close to the cervix, and the close connection established there with the visceral layer of the pelvic fascia, the latter

probably being the more important in the matter of uterine support. It appeared to him that in the course of the discussion a tendency had been shown to assign wrongfully a supporting function to one set of structures to the exclusion of others. The via media of attributing this both to the "suspensory fascia" and to the "pelvic diaphragm" seems to him to be the only sound course from the anatomical point of view. As to the priority of the lesion in these structures in the incidence of prolapse, he had nothing to add from personal observation, nor had he been able to gather a definite conclusion from the experience of others; but it seemed to him that nothing short of the testimony of a watchman in the parametrium at the moment of its occurrence would justify dogmatic statements on the point.

Dr. MACNAUGHTON-JONES still believed that there was a combination of forces at work in the pelvis in resisting any downward pressure on the uterus and maintaining it in its normal relation to the other viscera. The chief of these, no doubt, were the pelvic fascia and the levator ani. It was universally acknowledged that the suspension structures in the vault of the pelvis had but little power to prevent prolapse. Still, they played a certain part, and clinical experience, as well as the results of operations on those suspensory structures proved this.

Dr. W. S. A. GRIFFITH's view of the levator ani was that it is an auxiliary means for the support of the pelvic organs put into action to resist special strains, while the general pelvic fascia which forms a continuous sheet varying in density in certain positions was the chief support against ordinary conditions of pressure. The injuries produced by childbirth were the great determining cause of prolapse.

Dr. INGLIS PARSONS could not agree that the uterus was maintained in its position by the intra-abdominal pressure with or without the pelvic floor. The other chief factor, according to Dr. Paramore, in holding up the uterus was the pelvic floor. How did he account for those cases where the pelvic floor was ruptured completely, and yet the uterus did not come down? Further than this, complete procidentia sometimes occurred in virgins with an intact pelvic floor. Prolapse did sometimes follow rupture of the perineum and sometimes did not. The only explanation of this phenomena was that the ligaments in some women are strong enough to keep up the uterus without assistance, whereas in other cases the ligaments were weaker and could not stand alone, but required the help of the pelvic floor. Without being an egoist, he might point the results of his own operation of injecting the broad ligaments so as to increase the strength of the pelvic band. This operation demonstrated that the uterus could be kept up by even one ligament if it were strong enough. At the same time repair of the pelvic floor did undoubtedly help matters, but was not necessary to success in all cases. In conclusion, he would say :—(1) That the chief factor in supporting the uterus is the connective tissue with elastic and muscular fibres passing from the uterus in various directions to the walls of the pelvis, first described by Savage. (2) That the pelvic floor also helps indirectly to keep up the uterus by preventing prolapse of the vagina. (3) That intra-abdominal pressure does not keep up the uterus, but is the chief factor in causing prolapse.

The PRESIDENT said that the Section was indebted to the author for his valuable résumé of the views held on the supports of the uterus and to the distinguished anatomists who had taken part in the discussion, and who had taken a wider view of the matter than that of Dr. Fothergill at a previous meeting. The truth appeared to be that the supports of the uterus were of a composite character, including atmospheric pressure, muscles, ligaments and fascia. Some confusion, he thought, arose from speaking of the uterus being supported by intra-abdominal pressure, the retentive power of the abdomen of Matthews Duncan. He was rather surprised to hear that the cardinal ligament of Mackenrodt was inserted only into the vagina. His own operative experience led him to believe that it was inserted into the cervix.

Dr. PARAMORE replied.

REVIEWS OF RECENT BOOKS.

HERMAPHRODITISMUS BEIM MENSCHEN. VON FRANZ LUDWIG VON NEUGEBAUER. VORSTAND DER GYNÆKOLOGISCHEN ABTEILUNG DES EVANGELISCHEN HOSPITALS IN WARSCHAU. Pp. 748; 346 illustrations. Leipzig: Verlag von Dr. Werner Klinkhardt. Price 40 mk.

Dr. Franz Ludwig von Neugebauer of Warsaw has for many years been a recognized authority upon the subject of hermaphroditism in all its forms and in all its aspects, medical and social. In this large volume he gathers together much that he has already published, and places it, together with a great mass of new material, before the medical world. With the exception of Taruffi's large monograph on the same subject there is no book on hermaphroditism which approaches the present work in thoroughness and comprehensiveness: it is a mine of information from which it may be safely said that all future writers and investigators will continue to draw facts and suggestions for many years to come. It is abundantly illustrated and finely printed.

The volume begins with a short historical sketch of the subject of doubtful sex and almost immediately passes to the discussion of the embryology of hermaphroditism. It is in its embryological relations that this teratological state has of late years shown very evident signs of advance; and it may be confidently predicted that as more and more exact knowledge of the development of the genital organs is obtained the causation and mode of production of individuals of doubtful sex will be still more markedly elucidated. Hermaphroditism must not be separated from other groups of malformations and monstrosities as if it were something peculiar or due to special causes. It arises, like other teratological states, in a disordered embryogenesis and organogenesis, and differs only in the nature of the social, moral, and intellectual results and difficulties which it entails upon the individuals who are thus afflicted. Perhaps the most interesting part of the embryological part of the work is that in which the relationship of duplication of the external organs of generation to hermaphroditism is discussed. Cases of double penis and of double vulva have been recorded, in fact they form one of the varieties of double monster in which duplication affects only the pelvic region of the body, and it is easy to understand how, if one penis should be deformed (hypospadiac, for instance), the picture of an individual with both kinds of external organs may be produced. In this way some of the older cases which have been figured and which have been regarded as apocryphal may find their legitimate authorization and their explanation.

The greater part of the volume is occupied with the summary of 1891 cases of doubtful sex and of articles on the subject of hermaphroditism; these case-records and summaries fill about 550 large pages of print, are freely illustrated, and include works published as late as 1907. Not a few of the cases prove that heredity and family prevalence play a part in the production of hermaphroditism, e.g., the records of Philipps and Sir Halliday Croom. The rest of the volume is occupied with the discussion of various problems and questions arising out of the occurrence of cases of doubtful sex, such as the legal bearings of the deformity, the development of the secondary sex characters, the co-existence of other deformities in individuals with malformations of the genital organs, the nature of the ovo-testis, the co-existence of malignant tumours, the effect of hermaphroditism in the production of

insanity and in the causation of suicide, its relationship to tuberculosis, and the complications caused by it in the admission of persons of doubtful sex to schools, hospitals, and the army.

J. W. B.

A Text-book of Treatment. Part I. Obstetrics and Gynæcology. By John Campbell, M.A., M.D., F.R.C.S. Pp. 278. Figs. 93. London: Sidney Appleton. 1908. 10s. net.

This volume is Part I of a text-book of Treatment (alphabetically arranged), written by William Calwell, John Campbell and Robert Campbell, all of Belfast, and edited by R. J. Ferguson of London. The second part is to deal with Medicine and the third with Surgery.

This is a book to which justice cannot be done in a review without making free use of quotation. An idea of the scope and nature of the contents may be formed from the headings which appear under the letter B. They are:—"Bartholin's Glands" (Inflammation of); "Breast" (abscess of); "Breech Arrested" (Impacted Breech); "Broad Ligament" (Lipoma of the); "Broad Ligament" (Myomata of the); "Brow presentation." Under D the headings are:—"Decapitation"; "Deciduoma Malignum"; "Delivery, Obstructed"; "Dysmenorrhœa" (Membranous); "Dystocia from Anteflexion." In fact the whole book consists of mixed scraps of obstetrical and gynæcological information. As a sample of the authors' gynæcological technique the following is quoted:—"Parovarian Cysts: Require removal by enucleation. The patient is placed in the Trendelenburg position as soon as the opening of the abdomen has enabled the nature of the cyst to be ascertained. The peritoneum over the cyst is cautiously divided and the cyst wall exposed. The cyst wall is then shelled out by means of the forefinger, care being taken not to tear its capsule or any large vein in its well, or to injure the bladder or ureter. Oozing vessels are then picked up in forceps and secured by catgut ligatures or sutures introduced by a round needle. If the cavity left is small and not inclined to ooze, it may be closed by a few interrupted catgut sutures introduced along its margin, and at a sufficient distance apart to allow any gathering fluid to leak between them into the abdominal cavity and so drain away. If, on the other hand, a large cavity is left, or even a small one with much tendency to ooze, free external drainage must be provided for." The use of drainage is also advised after the removal of broad ligament lipomata and myomata.

There is a long paragraph under "Consulting Room (Arrangement of the)," in which we read:—"When a patient appears on the scene the programme is as follows. She is shown into the room first described, and notes of her case are taken. She is then told to undress, and the nurse is summoned by a touch of the bell which rings in the second room. The nurse brings with her on a tray, covered by a sterile cloth, the instruments usually needed for a gynæcological examination. The patient is undressed and placed on her back on the couch, where she is thoroughly examined from the head down. She is then turned on her left side and put in the semi-prone position while a vaginal and, if necessary, a rectal examination is made. After this she stands up for examination of the back in the erect posture. She is then taken into the second room, where she is made to pass urine into a clean vessel, having previously been cleansed of any leucorrhœal or other discharge she may have. After this she is placed in the lithotomy posture and examined as thoroughly as may be necessary. Finally she returns to the first room to dress, while the gynæcologist remains in the second room to test her urine. Having done so, he rejoins her, completes his notes, and gives her the necessary instructions before concluding the interview." Poor patient!

The best portions of the book are those dealing with the medical treatment of minor gynæcological troubles. The obstetric paragraphs generally advise the methods in common use. The book can be of no use to students and will not be used by specialists; but it may possibly be found helpful by practitioners who want scraps of information on minor gynæcology. Its arrangement makes it annoying to use, as the reader constantly finds, on looking up a subject "see so and so," no reference to the required page being given. There are some good illustrations, many of them borrowed from Appleton's other publications. The volume is nicely bound and is well printed on good paper. There is a good index. W. E. F.

ROTUNDA MIDWIFERY FOR NURSES AND MIDWIVES. By G. T. WRENCH, M.D. London: Henry Frowde, Hodder and Stoughton. Price 6s. net.

This is an admirable little book for its purpose. It is written in the simplest language and all the necessary technical terms are not only clearly explained but translated, which should help the midwife to remember them and use them correctly. There is no dull and difficult chapter of descriptive anatomy at the beginning, but all the essential anatomy is described and explained, as its importance becomes clear, in the descriptions of the processes and mechanisms of labour.

The rules of the Central Midwives Board are closely followed, and the often neglected subject of Hygiene is dealt with adequately to the midwife's point of view. A very clear distinction is constantly drawn between doctors' and midwives' duties and responsibilities, and at the same time the doctor's work is sufficiently explained to make it possible for the midwife to help him intelligently. The Central Midwives Board's rules themselves are added as a useful appendix. The description of obstructed labour and its results is, we think, especially well done.

There are a few misprints such as "forceps are" and "labiæ," which will no doubt disappear in a second edition, and in Fig. 3, the cord is represented as containing one artery and two veins. The terms "complete" and "incomplete breech" are given exactly the opposite meanings to those employed by most writers, and the measurements of the pelvis are not quite those given in most English text-books. In the treatment of post-partum hæmorrhage compression of the aorta is advised and bimanual compression of the uterus is not mentioned, no doubt intentionally. Perhaps it is hypercritical to call attention to the persistent use of "primipara," when "primigravida" is the meaning, or to deplore the frequent split infinitive, which is so usual in medical books.

These few criticisms are offered in no carping spirit and we can cordially recommend the book to all nurses preparing for the examination of the Central Midwives Board.